

1937

A Study of Production and Marketing of Butterfat and Butter in South Dakota

Lyle Morgan Bender

Follow this and additional works at: <http://openprairie.sdstate.edu/etd>

Recommended Citation

Bender, Lyle Morgan, "A Study of Production and Marketing of Butterfat and Butter in South Dakota" (1937). *Theses and Dissertations*. 1959.
<http://openprairie.sdstate.edu/etd/1959>

This Thesis - Open Access is brought to you for free and open access by Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

7B5382
B438
C66.5

A STUDY OF
PRODUCTION AND MARKETING OF BUTTERFAT AND
BUTTER IN SOUTH DAKOTA

By
Lyle Morgan Bender
Bachelor of Science Degree at South Dakota State College
of Agriculture and Mechanic Arts, 1935

A Thesis
Submitted to the Faculty
of
The South Dakota State College
of
Agriculture and Mechanic Arts
June, 1937
In Partial Fulfillment of the Requirements
For the Degree of Master of Science

SOUTH DAKOTA STATE COLLEGE LIBRARY

TABLE OF CONTENTS

	<u>Page</u>
Section I - Introduction	1
The Need for a Study of the South Dakota Dairy Industry . . .	1
Purpose of Study	2
Method of Study - Source of Data	3
Limitations of the Study	4
Section II - The Farm Dairy Industry	6
Introduction	6
South Dakota's Farm Dairy Plant	10
The Future of Dairying in South Dakota	22
Commercialization of Dairying	23
Section III - Butter Manufacturing and Procurement Industry . . .	29
Introduction	29
Influence of Location on the Character of the Dairy	29
Industry	29
Butter Production Trends	32
Historical Changes in Number and Volume	36
of Creameries in South Dakota	36
Introduction	36
Size of Creameries	39
Type of Creameries	41
History of the Centralizer System	44
Section IV - Marketing Practices and Problems of South Dakota . . .	53
Creameries	53
Introduction	53
Trends in B. F. Purchases	57

June 37 - Author's

	<u>Page</u>
Buying Policies and Methods of Creameries	61
Introduction	61
Methods of Buying Cream Through Cream Stations	62
Methods of Paying for Cream at the Creamery Door	64
Buying Cream by Grade	64
Basis of Prices Paid for Butterfat	72
Methods of Securing Butterfat	72
Effect of Competition on Extension of Trade Area and Methods	
of Cream Procurement	76
Marketing of Butter by Creameries	84
Introduction	84
Marketing of Butter as Reported by Creameries Returning	
Schedules	85
Trends in Butter Receipts from South Dakota at the Central	
markets	88
Creamery Methods of Marketing	93
Effect of Transportation	97
Summary	102
Appendix	106
Schedule 1	110
Schedule 2	115
Bibliography	117

FIGURES

<u>Number</u>	<u>Page</u>
1 - Trend of Cattle Numbers in South Dakota, 1892-1937 .	8
2- Important Trends in South Dakota Dairy Industry . .	9
3- Butterfat Production per cow in 1934	12
3- Dairy Farms in Per Cent of Total Farms, 1929	15
4- Number of Milk Cows Per 100 Acres of Farm Land-1934.	16
5- Butterfat Produced Per 100 Acres of Farm Land-1934.	18
6- Per Cent Cows Milked Are of All Cattle in 1934 . . .	20
7- Per Cent of Cows Milked that are of the Dairy Type in 1929	21
9- Milk Equivalent of All Dairy Products Sold in Per Cent Of Total Milk Produced in 1929	26
10-Milk Equivalent of Butterfat Sold for Per Cent of Total Milk Produced in 1929	27
11-Location of Creameries in 1935-'36	31
12-Production of Farm and Creamery Butter in South Dakota From 1879-1934	55
13-Density of Cream Stations Per County in 1929	46
14-Density of Cream Stations Per County in May, 1936 .	47
15- Pounds of Butterfat Shipped by Cream Stations Per . . County as Reported by Creameries in 1929	49
16-Per Cent of Farm Sales of Butterfat, Sold to Cream . . Stations in 1929	50
17-Volume of In and Out of State Sales of Butterfat Pro- duced in South Dakota from 1910 to 1936	59
19-Relation of Volume of Butter Produced to Trade area of 33 creameries in 1934	81
18-Production and Sales of South Dakota Creamery Butter, 1921 to 1936	91

NumberPage

20-Receipts of South Dakota Creamery Butter at the Leading Markets in the United States from 1921 to 1936 . .	92
21-Location of Creameries in 1934-'35	108
22-Location of Creameries Returning Schedules in 1935 .	109

TABLES

1 -Total Milk and Butterfat Production in South Dakota .	11
2- Per Cent of the Milk Produced which is kept on the Farm and Sold in South Dakota	24
3- Production of Farm and Creamery Butter in South Dakota, 1879-1934	34
4- Number Creameries and Cream Stations in South Dakota 1910- 1936	38
5- Volume of Butter Produced by South Dakota Creameries .	40
7- Volume of Butterfat Sold in South Dakota	60
6- Volume of Butter Produced by South Dakota Creameries .	42
8- Systematic Plan of Price Differentials Used by Land O'G Lakes Creameries, Inc.	68
9- Creamery Butter Price Differentials on the Chicago and New York Markets	69
10-Volume of Butterfat Received by Various Methods of Pro- curing Cream as Reported by 35 Creameries in South Dakota in 1934	74
11-Methods of Securing Butterfat by 38 Creameries in South Dakota in 1934	75
12-Volume of Butterfat by methods of Procuring cream as Reported by 35 Creameries in South Dakota in 1934.	77
13-Relation of Volume of Butter to Trade areas of 35 Creameries in South Dakota in 1934	80
14-Number of Towns in South Dakota having Different Numbers of Cream Stations	83

NumberPage

- 15-Volume of Butter Sold Locally and to other Markets as
Reported by 35 Creameries in South Dakota in 1934 86
- 16-Volume of Butter Shipped to Various Markets as Reported
by 26 Creameries in South Dakota in 1934 87
- 17-Volume of Butter Sold Locally and to Other Markets as
Reported by 35 Creameries in South Dakota in 1934 89
- 18-Creamery Butter Receipts at Each of Four Principal Mar-
kets in Per Cent of Total Receipts 94
- 19-Production Sales of South Dakota Creamery Butter in 1921-
1936 90
- 20-Freight Rates on South Dakota Butter From Representative Ship-
ping points in South Dakota to Important Butter
Markets 99

ACKNOWLEDGEMENT

The writer wishes to express his appreciation to Professor Raymond Penn, who supervised this study and whose valuable suggestions and criticisms have aided materially in making this study possible; to Professor H. P. Hanson, and to Professor Gabriel Lundy, Head of the Department of Agricultural Economics, for critical reading of the manuscript; to Professor C. C. Totman and to Professor T. M. Olson, Head of the Department of Dairying for valuable suggestions; to Creamerymen and Marketing Agencies for material used in this study; and to all others for their assistance in completion of this manuscript.

Section I - INTRODUCTION

The Need for a Study of the South Dakota Dairy Industry

Even a most superficial study of the South Dakota dairy industry indicates its economic importance to the state. Dairying, though not of major importance, utilizes a relatively huge physical production plant, spread out on most every farm. It includes processing and marketing facilities, of which the creamery and cream station are most important. In 1935, dairying constituted one of the state's more stable industries, providing about 15.7 percent of the gross income of South Dakota farmers. It ranked second to wheat, which accounted for 18.7 percent of the total gross income. All cattle and calves, hogs, and corn are ranked below milk, accounting for 15.5, 11.4, and 10.2 percent of the total gross income, respectively.

As a large proportion of the cows milked are of the dual-purpose or beef type, farmers are enabled to shift from milk to beef production as the price advantage shifts between these two products. Because of this flexibility the cattle industry remains, in periods of depression, a more stable of unstable industries. This remarkable flexibility has its advantages. Though wasteful in many ways, it makes the dairy industry in this state quickly adaptable to changing prices. The flexible portions are usually forced out or brought back into production without any great concentration of capital losses among farm producers.

South Dakota farmers and creamery men need to be constantly alert to the fact that this part of their industry is in the grip of the major forces which are shaping its future jointly with the rest of South Dakota's agriculture. Too often, they are engrossed in the current net returns and in the immediate details of management of farms

and factories to note the forces bringing about more fundamental changes a little farther ahead.

No one group alone is interested in and responsible for the success of the South Dakota dairy industry. The farmer delivers his product directly to the consumer, or to the manufacturer, who processes it and then delivers it to the retailers who sell the finished product to the customer. Any group of people doing business with the farmer are either directly or indirectly affected by his operations. In periods of drought and depression, farmers practicing dairying as a part of their farming systems have been much better off than those who depend entirely upon grain and other livestock as a source of ready cash income.

Purpose of Study

Agricultural reorganization, severe drought, competition between creameries, quality consciousness, and improved transportation are some of the factors that have brought to the surface a number of perplexing problems affecting both the farm and creamery organization.

The purpose, then, of this study is twofold: first, to sketch briefly the historical development of farm production of butterfat, the creamery, and the methods employed in the merchandising of butterfat and butter in South Dakota; secondly, to point out and discuss some of the primary problems in the merchandising of butterfat and butter in the state. It stops short at the point where a study of efficiency in the individual plant would begin, leaving that very vital part of the problem for later study.

Method of Study - Source of Data

In a state such as South Dakota, where dairying is considered as a minor enterprise in the farming business, one encounters the problem of securing adequate statistics. Statistics used in the general development of this study were secured from United States Censuses of Agriculture, Manufacturing and Distribution for the years 1930 and 1935, United States Department of Agriculture Year Books, and Crops and Markets, published by the United States Department of Agriculture. Supplementary statistics were secured from various government publications. Statistics on creamery and cream station numbers were secured from South Dakota State Dairy Experts Records, South Dakota Dairy Association records, and Annual Reports of the South Dakota Department of Agriculture.

Primary data on creamery operators were obtained from a questionnaire, sent to 126 creameries in South Dakota in the fall of 1935 requesting detailed information regarding their 1934 calendar year operations. Returns were received from 40 creameries, which was 31.7 percent of all the creameries operating in the state. The forty creameries purchased for the calendar year of 1934 33 percent of the butterfat sold to creameries in the state in 1934-'35. Questionnaires were returned by 15 or 22.4 per cent of the independent creameries, accounting for 23 per cent of the butterfat sold to independent creameries operating in South Dakota in 1934-'35. Forty-one or fifty-one per cent of the cooperative creameries purchasing 40 per cent of the butterfat purchased by cooperative creameries in South Dakota returned questionnaires. Questionnaires

were returned from four out of 16 centralizer creameries or 22 per cent, purchasing 17 per cent of the total butterfat sold to centralizer creameries in 1934-'35.

Later in 1935, questionnaires were sent to selected creameries located in the state and to creameries located out of the state but purchasing cream in the state, ordering for specific information on merchandising policies and methods. A copy of the two questionnaires and a map showing the location of the creameries studied will be found in the appendix. Additional information on merchandising methods and policies were secured by private communications and personal interviews with creamery men and marketing agencies.

Limitations of the Study

Many limitations are encountered and must be recognized in a general study of this type. This study is not meant to be complete in itself.

The first problem encountered is that of securing continuous, reliable, and adequate statistics. There had been little need for detailed continuous statistics on the dairy industry in South Dakota; thus no special effort has been made to compile and preserve such information.

Adequate business statistics on creamery organization are not available for public use. Primary data received from creameries returning the questionnaire are incomplete and oftentimes somewhat vague. Perhaps more available data may have been received, had such data been secured by personal interview with creamery operators, rather than by use of the questionnaire method which was used in this study.

At the best, the deductions made from this study must be regarded

not as absolute, but only as indications of trends and conditions,
derived from the available data.

Section II - THE FARM DAIRY INDUSTRY IN SOUTH DAKOTA

Introduction

South Dakota lies on the western fringe¹ of the Midwestern butter production region of which the Tri-State area (Minnesota, Iowa and Wisconsin) is the nucleus. The western fringe is composed of North Dakota, South Dakota, Kansas, Nebraska, and Missouri. The general character of agriculture and farm dairying in South Dakota is very similar to the other states in the western fringe. Producers in this region are largely producers of butterfat, with summer dairying predominating.

Dairying is most important in the eastern half of South Dakota. Farmers in this region follow a diversified system of crop and livestock farming, while in the western portion, cattle and sheep grazing are most important². The main income from dairying is largely from the sale of butterfat, except in localized areas near towns and cities.

Production of milk, dairying, if you please, probably first appeared about 1848 at the time the first settlement for agricultural purposes was established³. At that time milk was produced for home consumption only. The industry continued as such until about 1880, when it began to acquire a somewhat commercial aspect.

-
1. Mighell, Albert.
Changing Status of the Iowa Dairy Industry.
Iowa Agr. Expt. Sta. Bull. No. 558, 1935.
 2. Rogers, R. H.; Elliott, F. L.
Types of Farming in South Dakota.
South Dakota Agr. Expt. Sta. Bull. No. 238, 1929.
 3. United States Department of Agriculture, Bureau of Animal Industry.
Bull. No. 16, 1895.

On January 1, 1892, it was estimated that there were 133,000 head of milk cows in South Dakota, which was about 25 per cent of all the cattle and calves. In 1895, there were about 289,000 head of milk cows that produced approximately 10,000,000 pounds of milk. Preliminary estimates on numbers of milk cows on South Dakota farms January 1, 1937 are 529,000 or about 33 per cent of all cattle and calves.

The numbers of all cattle on farms in South Dakota vary, over a period of years, in cycles of from 10 to 18 years in length. The number of milk cows shows but little tendency toward a cycle but have followed a distinct upward trend since 1892. (See figures 1 and 2) The ratio of milk cows to all cattle and calves varies widely from 1892 to 1937. In the earlier period, up to about 1900, the ratio averaged about 40 per cent. Since 1900 to about 1936 the ratio varied between 20 and 30 per cent. Prior to 1934 the ratio averaged about 30 per cent. In 1937 the milk cow ratio was approximately 33 per cent. Drought conditions, causing heavy sales of all cattle (especially range cattle), and low prices for beef, were the main factors for increase in the milk cow ratio. Milk cow numbers dropped from 675,000 in 1934 to 529,000 in 1937, while all cattle dropped from 2,200,000 in 1934 to 1,606,000 in 1937. Dairy heifers, one and two years old, increased slightly from 1920 to 1934. There was a decrease of 43,000 head from 1933 to 1937¹.

1. Bureau of Agricultural Economics, Division of Crops and Livestock Estimates, Federal Statistical office, Brookings, South Dakota.

Figure 1—Trend Of Cattle Numbers In South Dakota, 1892 to 1937

Source: Bureau of Agricultural Economics, Division of Crops and Livestock Estimates, Federal Statistical Office, Brookings, South Dakota. Numbers as of January 1.

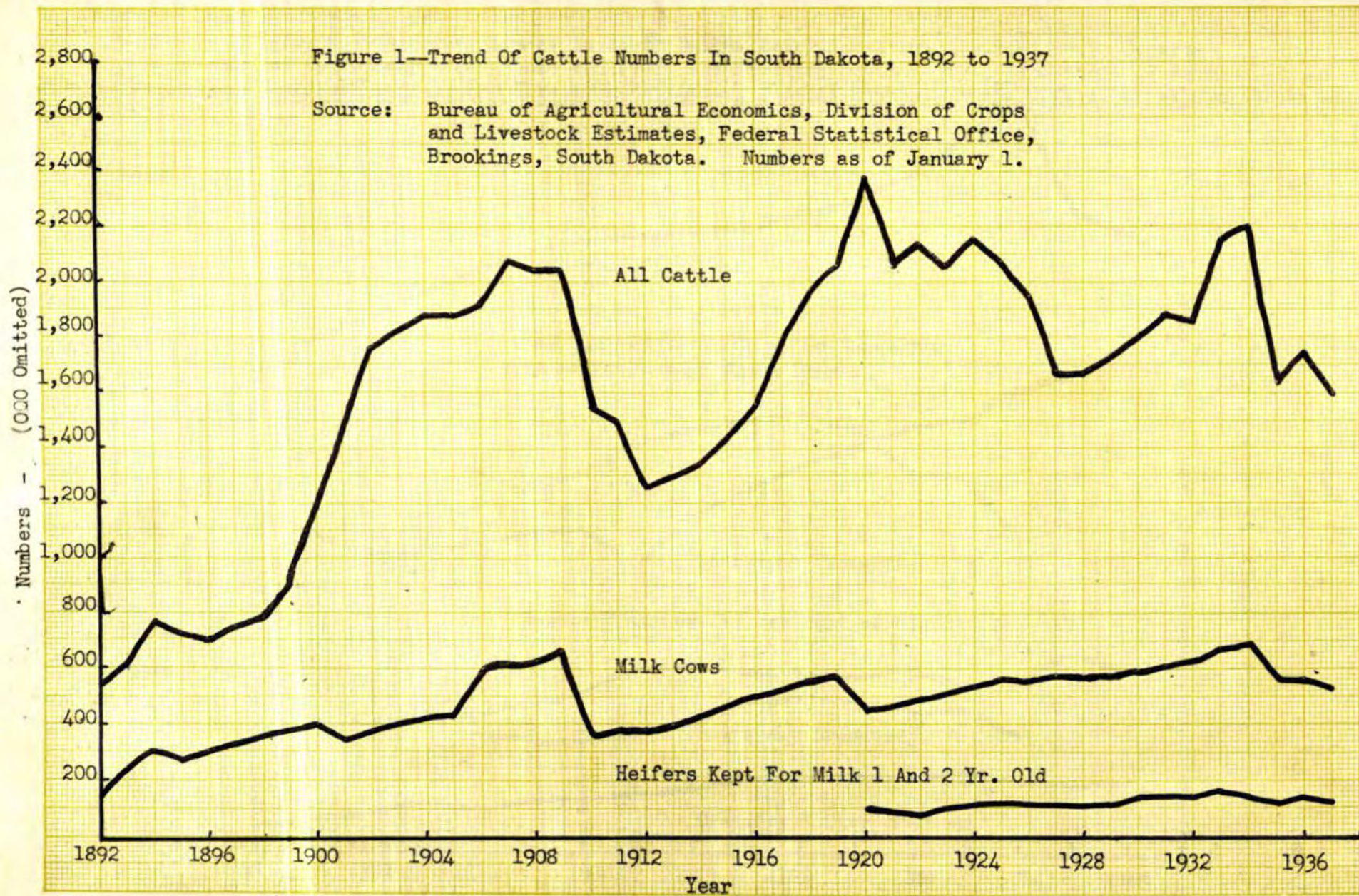
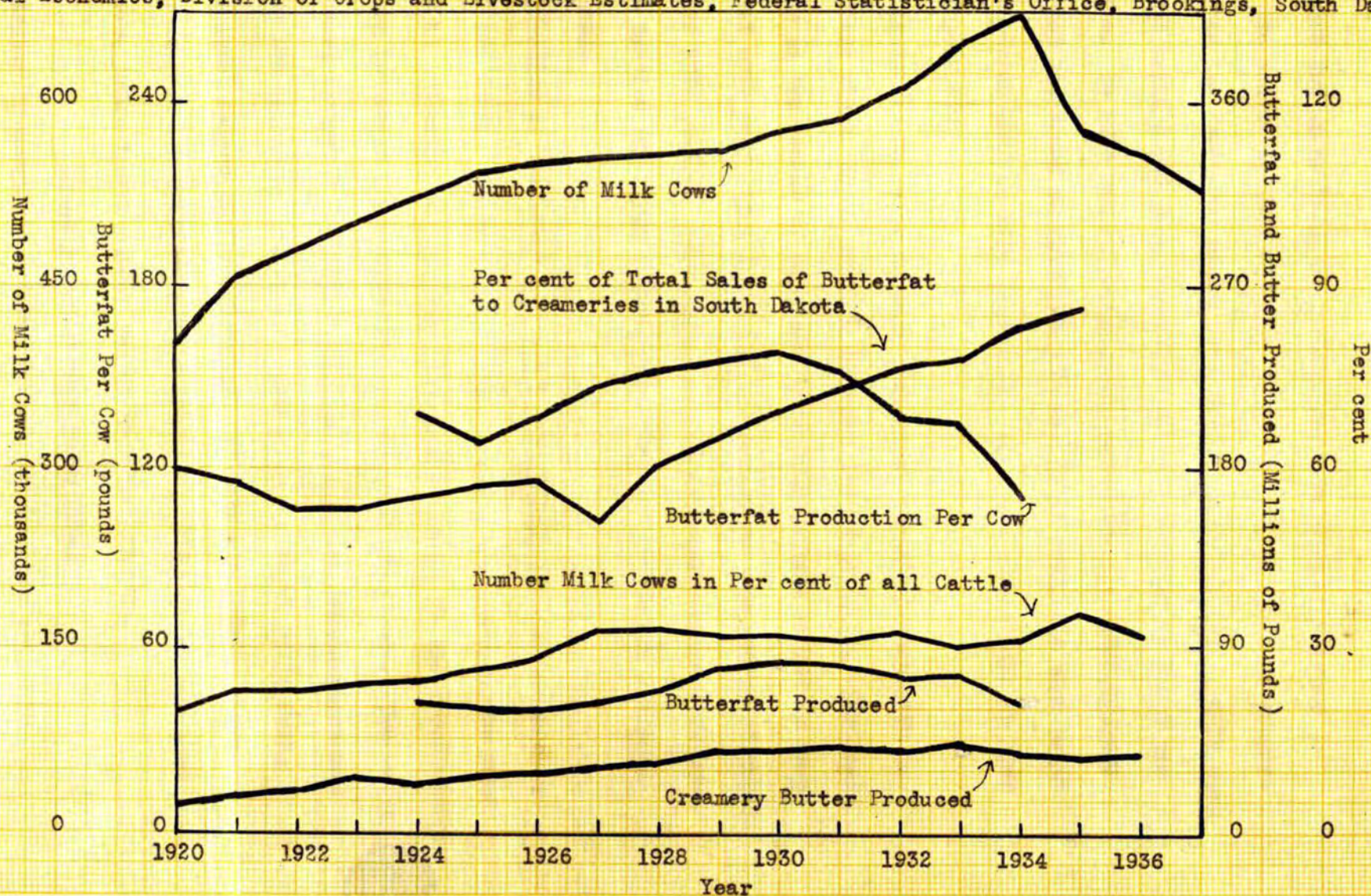


Figure 2. Important Trends in South Dakota Dairy Industry. Source: U.S. Department of Agriculture Year Books and Crops and Markets; South Dakota, Department of Agricultural Economics, Division of Crops and Livestock Estimates, Federal Statistician's Office, Brookings, South Dakota



Since 1925 and up to 1930, the total milk production increased as did the number of cows kept for milk, but not in the same proportion. For the four year period from 1930 to 1934 inclusive, milk cows increased rapidly and milk production per cow fell off at about the same rate. In 1925 the estimated milk production was 1,625,000,000 pounds and increased to 2,208,000,000 pounds in 1930, the high point for the period 1925 to 1934 inclusive. Milk production fell in 1934 to 1,682,000,000.

As indicated in table 1, milk production increased from 1924 to 1930, since which time a gradual decrease has taken place. The rapid increase in the number of milk cows from 1930 to 1934 tended to keep the total milk production up, while production per cow decreased rapidly during this period. (See figure 2) In 1934 the average milk production per cow was 2,900 pounds, and butterfat production averaged 110 pounds.

Production of butterfat per cow is relatively low for the greater part of the state. In many countries, as shown in figure 8, the production of butterfat per cow was 75 pounds or less. In the crosshatched area, the butterfat production per cow was over 100 pounds. The areas of greatest butterfat production per cow are in the northeastern and southeastern counties, and three counties in the Black Hills area.

The great degree of flexibility in the dairy enterprise accounts largely for the low efficiency in production, although for the past few years, limited feed supply was an important factor.

South Dakota's Farm Dairy Plant

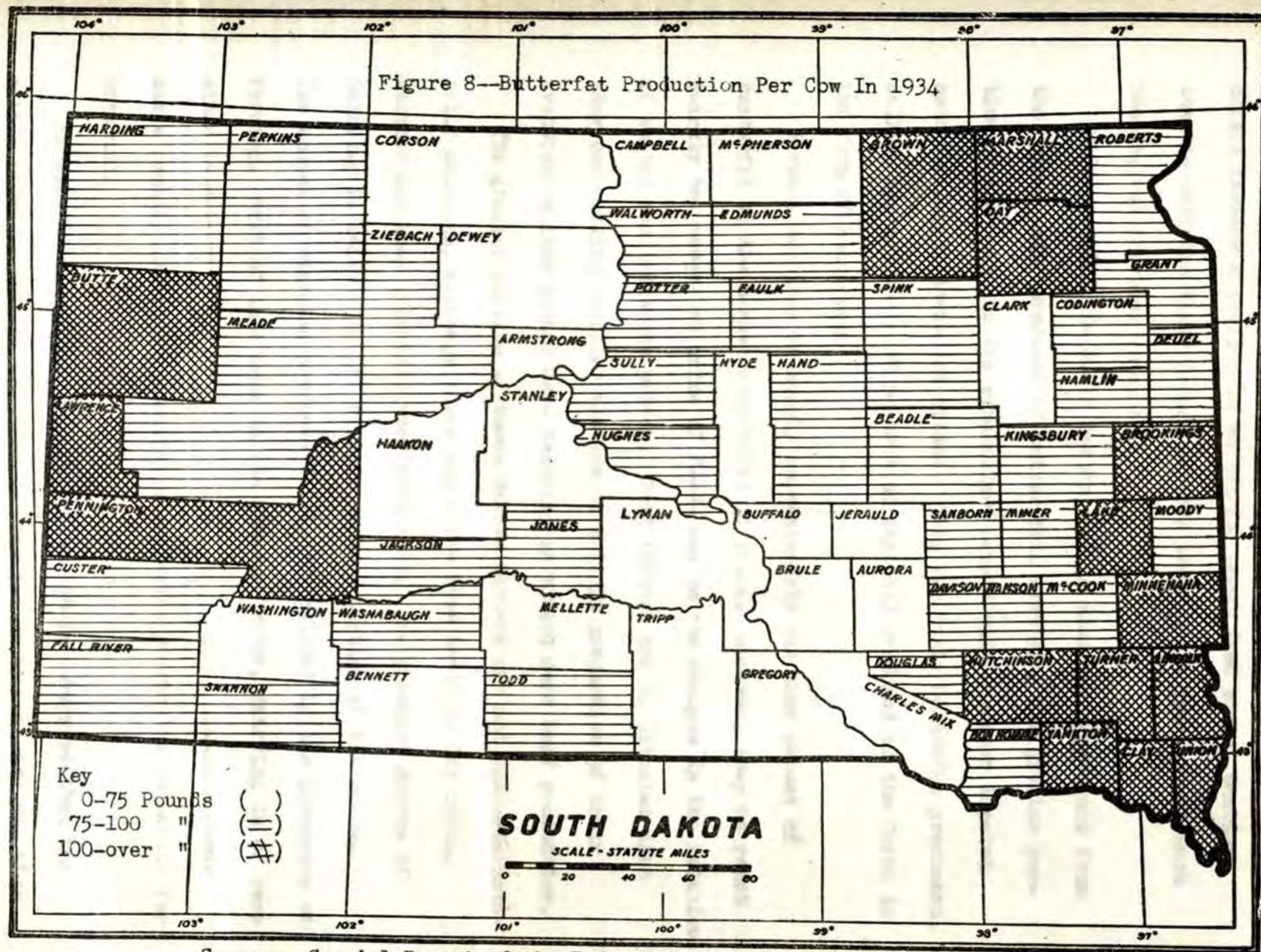
Dairying is practiced by most farmers in South Dakota as an essential part of their diversified system of farming. Dairying

**Table 1 — Total Milk and Butterfat Production in South Dakota
1924 to 1934^x**

Year	Total Production		Production per cow	
	Milk ^{xx} Million pounds	Butterfat Million pounds	Milk pounds	Butterfat pounds
1924	1,678	64	3,625	138
25	1,625	62	3,450	131
26	1,640	62	3,580	136
27	1,747	66	3,900	148
28	1,835	70	4,050	154
29	2,132	81	4,100	156
30	2,208	84	4,150	158
31	2,180	83	4,000	152
32	2,005	76	3,580	136
33	2,118	80	3,530	134
34	1,682	64	2,900	110

^x Source — Year Books of Agriculture, United States Department of Agriculture
Crops and Markets published by United States Department of Agriculture

^{xx} Excludes milk spilled or wasted on farms.



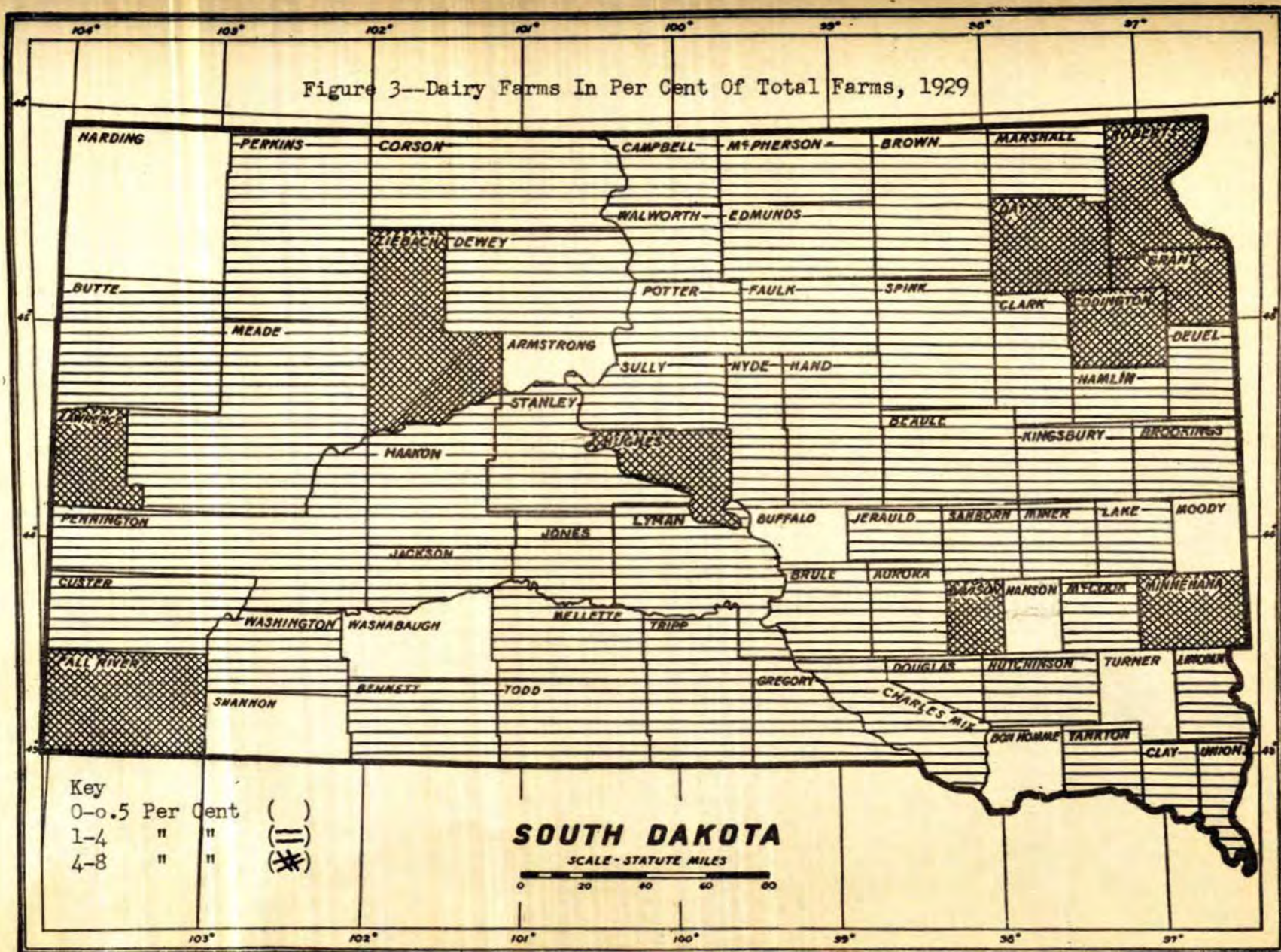
Source: Special Report of the Federal Farm Census of South Dakota, Department of Commerce, Bureau of The Census, Washington, D. C., No. M-13, 1935. Data Computed from number of Cows milked and total milk production on farms.

they may produce beef with reasonable efficiency, while under another set of conditions they may turn to dairying. Dairy products and beef products on many farms in the eastern part of the state are often simultaneously almost equally important sources of income. In 1935 dairy products and beef products were practically of equal importance in South Dakota farm incomes, accounting for 15.7 and 15.5 percent of the total gross income for the state, respectively.

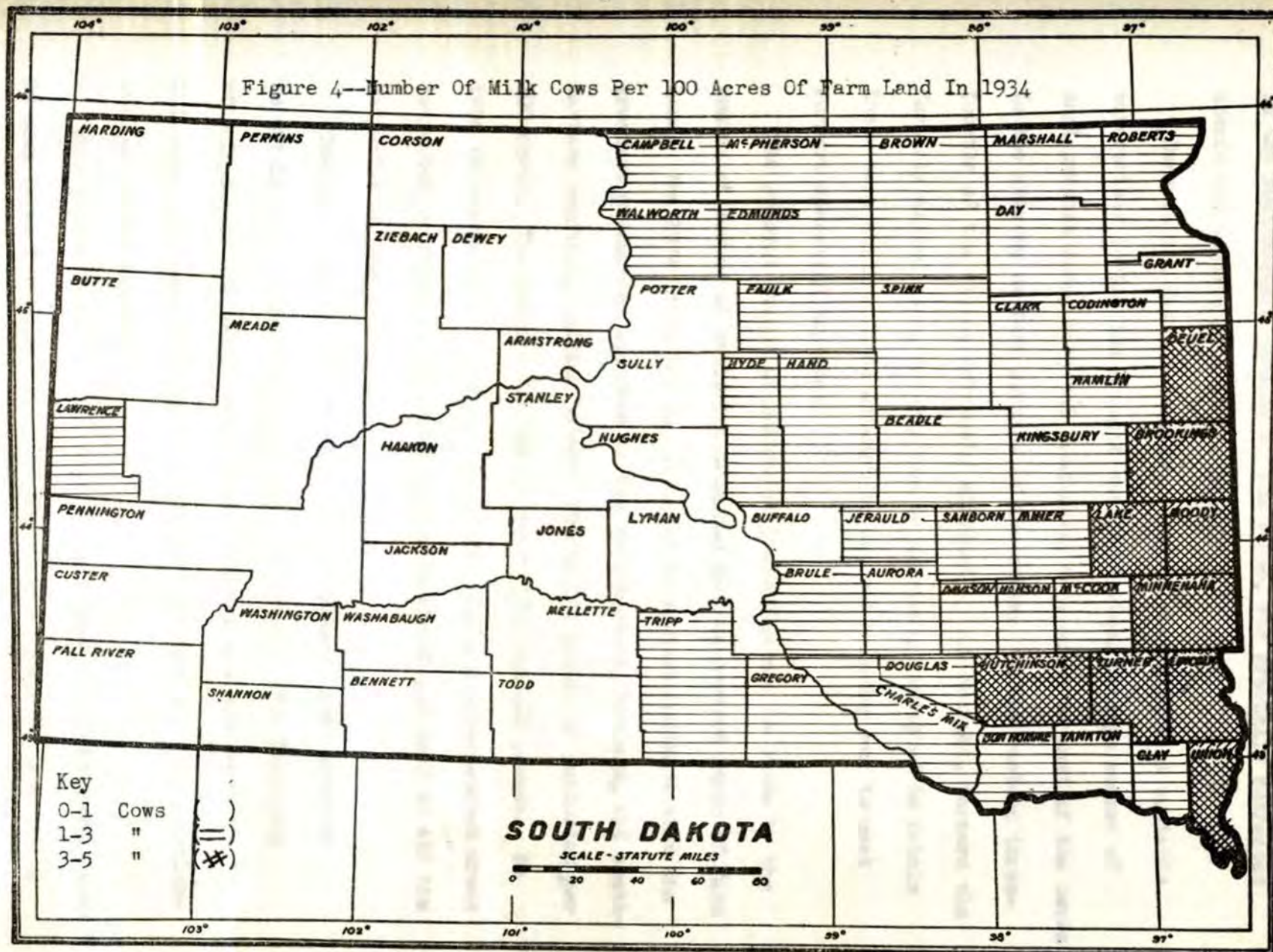
To fully comprehend the nature of the dairy enterprise and its effects on the marketing systems that have developed, one must have some knowledge of the production plant, the farm, and the density and intensity of the dairy enterprise in the farming system.

There are few strictly dairy farms in the state and these are generally located near towns and cities, where the major outlet is market milk. The greatest proportion of dairy farms are found in the northeastern four counties, often referred to as the "dairy section" of South Dakota. Other counties in which there were reported a large proportion of dairy farms are Minnehaha, Hanson, Hughes, Zieback, Lawrence, and Fall River. The crosshatched areas in figure 3 indicate the areas in which 4 to 8 per cent of the farms are classed as dairy farms. For the state, in 1929, dairy farms accounted for about 2 percent of all farms. The greatest volume of butterfat is produced on the general diversified type of farm where generally the dairy enterprise is of minor importance.

The number of milk cows per one hundred acres of farm land is a widely accepted measure of the density of production in a given area. In 1934 the state averaged about 1.4 cows per one hundred acres of farm land. As shown in figure 4, the greatest density occurs



Source: Fifteenth Census of the United States Census, Agr.,
Vol. 3, Part 1, Type of Farm, The Northern
States, 1930



Source: United States Census of Agriculture
for South Dakota, 1935

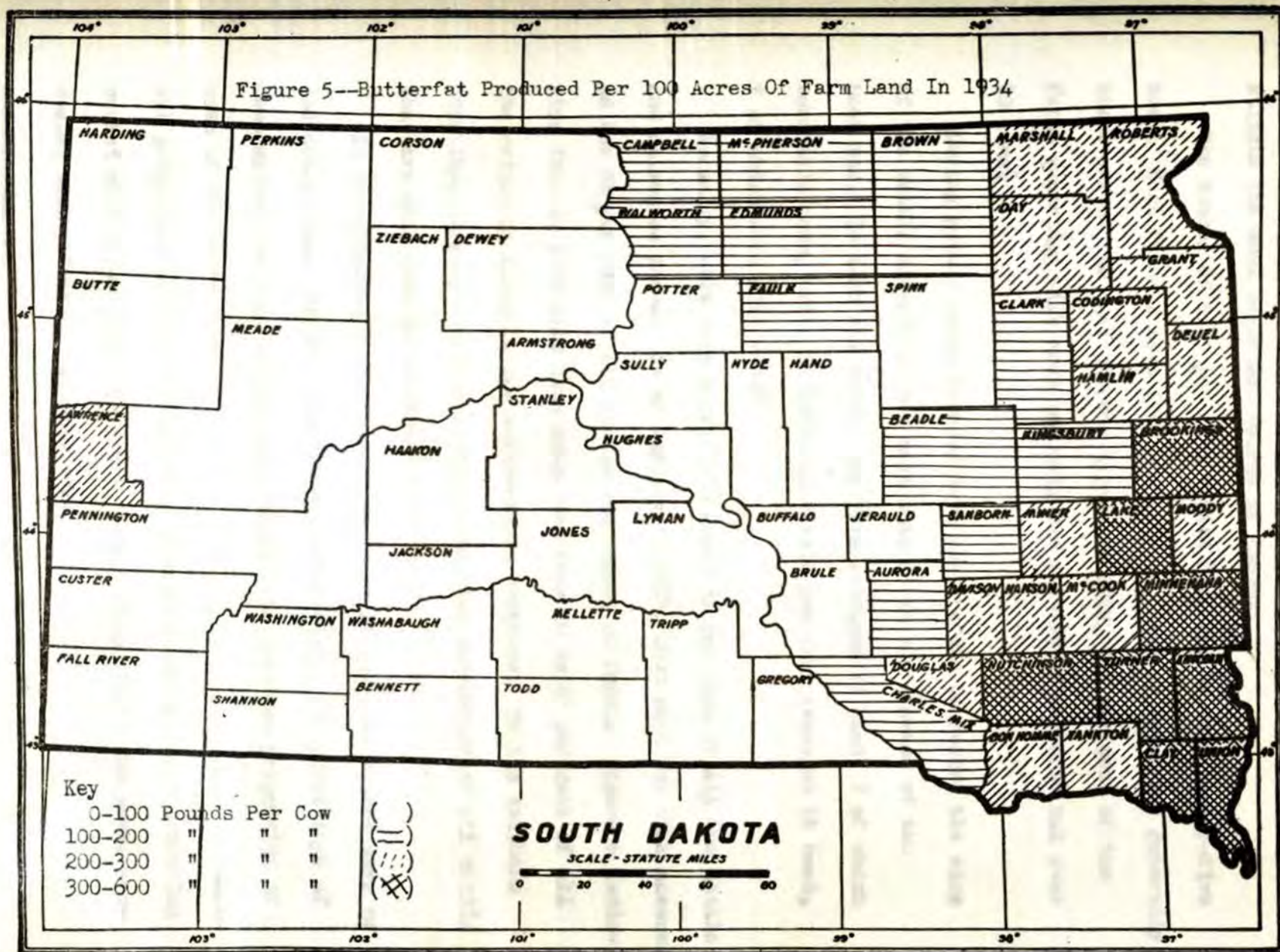
in the southeastern portion of the state, and gradually decreases toward the western part of the state.

Because the dairy enterprise remained more stable of unstable enterprises during the drought and depression, a large number of dual purpose cows, marginal producers, were added to most of the herds in the extreme eastern portion of the state. In the western three-fourths of the state, extremely affected by the drought, farmers who formerly milked none, or only one or two cows, attempted to retain their best milkers in an attempt to eke out a living and to meet current operating expenses.

The present status of butterfat production may be shown by the number of pounds of butterfat produced per one hundred acres of farm land. The 1934 estimates on butterfat production indicate that the greatest production occurred in the northeastern, eastern, and southeastern counties, ranging between 200 to 600 pounds of butterfat per 100 acres. The average for the state in 1934 was 126 pounds. In 1934 the eastern 25 counties, the broken line and crosshatched areas indicated on figure 5, produced approximately 67 per cent of all the butterfat in the state.

One must proceed further with the analysis of this industry to obtain a true picture of its characteristics. The intensity of dairying in the cattle enterprise further, and more emphatically, indicates the importance of the nature of production on the development of market methods.

Milk production as a side line is practiced on nearly every farm. On many farms its importance does not extend beyond the production of milk for home use; on others the sale of butterfat and milk con-



Source: U. S. Census of Agr. for South Dakota, 1930
Computed from total milk produced and number
of acres of farm land.

stitute the most important source of income.

The number of cows per farm varies from one to over twenty-five head. Most farmers keep from three to ten head of cows, and generally these are of the dual purpose type. In 1929, 6.7 per cent of the farms reporting milk cows had only one cow and 16 per cent had over 10 cows¹

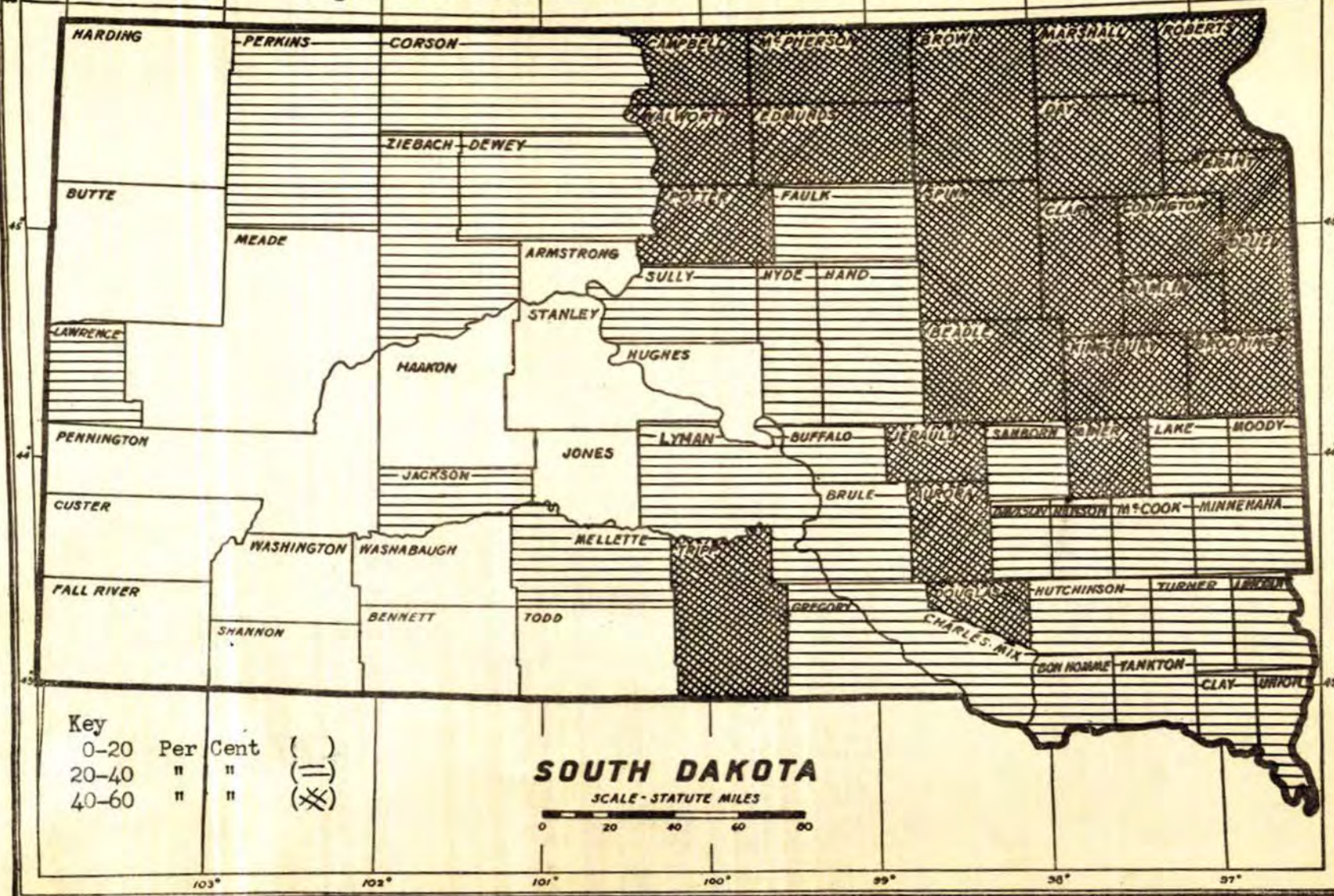
During recent years farmers have been forced to reduce the size of the cattle enterprise but have done so at the expense of the beef end. In 1929 all cattle per farm averaged 23 head, 7 of which were milk cows, while in 1935 all cattle per farm averaged 18 head, 7 of which were milk cows²

Normally, milk cows constitute about 31 per cent of all the cattle and calves on farms. As of January 1, 1937, cows kept for milk accounted for 33 per cent of all cattle and calves on farms. Figure 6 indicates that in 1934 milk cows comprised from 40 to 60 per cent of all the cattle on farms in the northeastern counties. In the southern counties, largely a cattle feeding area, the percentage of all cattle that are milk cows is considerably less.

It is estimated that about 50 per cent of the cows milked were of the dairy type. Figure 7 indicates, graphically, the percentage of cows milked that are of the dairy type. The greatest proportion of cows of the dairy type occurs in the mideastern counties. The highest proportion of cows of the dairy type is found on farms producing market milk or on the farms where farmers keep only a few cows, producing milk primarily for home use.

-
1. Shepard, John B.; Smith, Richard K.
Statistical Supplement to Milk Production Trends, No. 9
Washington, D.C., March 1934.
 2. United State Census of Agriculture, 1930 and 1935.

Figure 6—Per Cent Cows Milked Are Of All Cattle In 1934



Source: Bureau of Agr. Ec., Div. of Crops and Livestock
Est., Fed. Statistical Office, Brookings, S. D.

The Future of Dairying in South Dakota

Let us now observe the future of dairying in South Dakota. It is evident that in South Dakota the most important indicators of dairying are the trends in the number of milk cows, the proportion of milk cows to all cattle, and the specialization of dairy farming. Are the milking herds in the state, through further expansion of numbers, to become even more largely of dual purpose type? Will the beef cattle business come back as it did in 1909 and 1920, or is it very likely that the halt in the steady trend of the past few years toward more dairying will be temporary rather than of longer duration?

By virtue of location, with regards to markets and centers of population, this state is not likely to adopt dairying as its major enterprise. The increase in dairying during recent years has been due largely to the fact that this enterprise remained more stable than most of the unstable farm enterprises. Since 1920 the relation of butterfat prices to beef and hog prices has been favorable to the production of butterfat.

The rising prices of hogs and beef cattle, beginning late in 1935, placed hog and beef cattle production in the more favorable position. At the same time feed prices rose rapidly limiting the favorability of butterfat production. Just what the future holds is indefinite. The shortage and price of feed and the price of beef and hogs will likely attract the farmers attention, resulting in the use of available feed for the production of beef and hogs. Milk production may decrease as a result. On the other hand, milk production is likely to continue in a relatively favorable position, because of the extended drought period. The fear of another year of drought

will tend to encourage the farmer to maintain his present herd. However, there may be a tendency to shift a large portion of the younger stock towards beef production. Favorable climatic conditions in the two years would result in a shift back to beef and hog production and dairying would likely return to its former level. The very nature of the general farm organization requires that the dairy end of the cattle enterprise be highly flexible, which requires the herds to be composed largely of dual purpose or beef type cows.

Commercialization of Dairying

All farmers are producers of milk, but whether to sell it as such or not is the question which confronts them. The amount of milk retained for use of the farm is affected by the type of product the producer sells and the price he receives for that product. Over a period of time in intensified dairy areas, noticeable shifts are made from one method of disposal to another. Such is not the case in South Dakota. Butter is the main outlet for their product.

Numerous small producers, distant from market and transportation facilities, are the main factors that limit this state to the production of butterfat. Any increase in volume of milk produced will not likely bring about an increase in the sale of retail nor wholesale market milk and cream. The increase in production will be sold as butterfat.

In 1934 approximately 73 per cent of the milk produced on farms was sold. The following forms, and proportions of total milk sold by farmers in 1934 are: butterfat, 66.4 per cent; milk and cream retail, 3.5 per cent; milk and cream wholesale, 1.9 per cent; and farm butter 0.7 per cent. (See table 2).

Table 2 — Per Cent of the Milk Produced Which is Kept on the Farm and Sold in South Dakota^x
1929

Use of Milk	1929	1932	1933	1934
Total kept on Farm	27.8	24.8	23.6	27.5
Milk and cream }		11.6	11.1	13.2
Fed to calves }	18.5	3.6	3.5	3.5
Farm butter	9.3	9.6	9.0	10.8
Total Sold	72.2	75.2	76.4	72.5
Butterfat	66.3	68.9	70.2	66.4
Milk & Cream Retail }		3.3	3.1	3.5
Milk & Cream Wh-sale }	5.1	2.3	2.1	1.9
Farm Butter	0.8	0.7	1.0	0.7

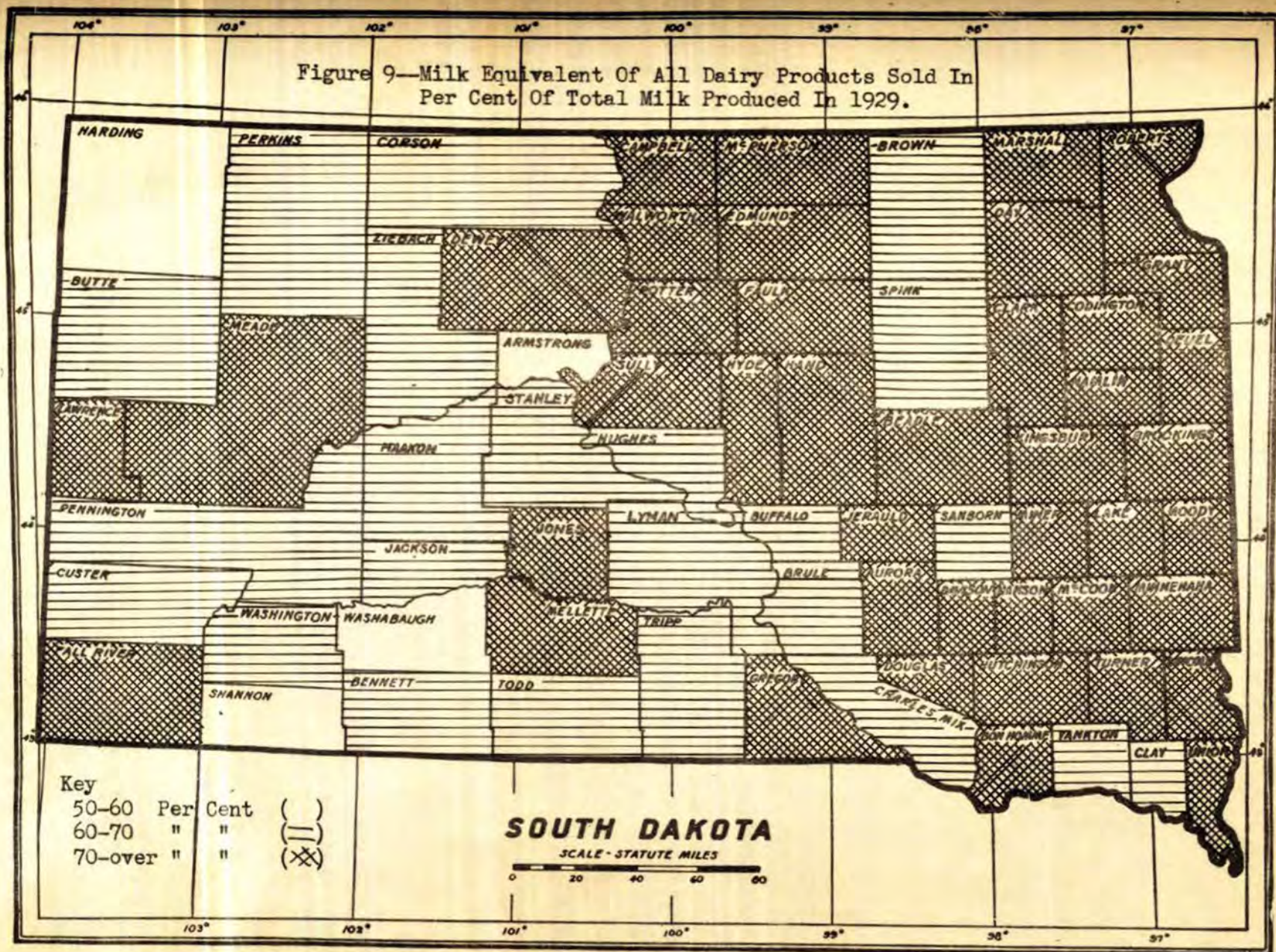
^x Source -

1929 data from 15th U. S. Census Report, Agriculture, Vol. IV, 1930.
1932 to 1934 inclusive, Year Books of Agriculture, United States
Department of Agriculture

The remaining 27 per cent of the milk produced in 1934 was kept for use on the farm. Whole milk, cream, and milk used in the making of farm butter, accounting for 24 per cent of the total milk kept for use on the farm in 1934, was used for human consumption on the farm. About 3 per cent of the milk kept for use on the farm was fed to calves. Peak sales were reached in 1932 and 1933 when the total sales of milk reached 75 and 76 per cent of that produced. The increase in volume sold was largely reflected in the sale of butterfat which increased accordingly. (See Table 2.)

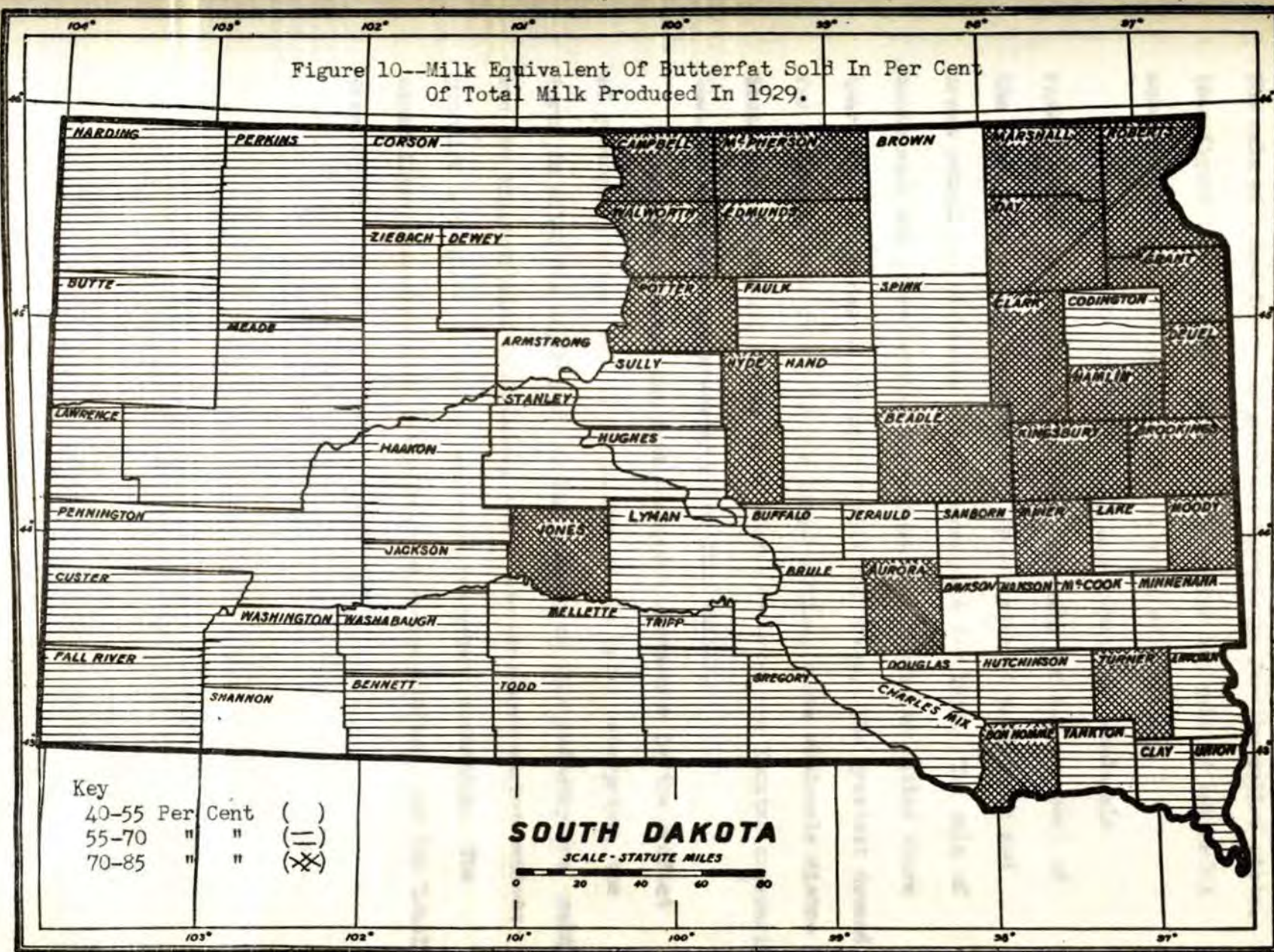
In 1929, 72.2 per cent of the total milk produced was sold in various forms of dairy products. Milk sold as butterfat accounted for 66.3 per cent of the total milk sold. Milk sold as whole milk and cream retail and wholesale accounted for 5.1 per cent of the total milk sold. The milk equivalent of farm butter sales accounted for 0.8 per cent of the total milk sold.

Recent data are not available on disposition of dairy products by counties in South Dakota. Figures 9 and 10 give one some idea of the volume of milk sold in different forms in 1929. The greater part of the state east of the river and scattered counties west of the river, sold over 70 per cent of the milk produced in those areas in 1929. (See figure 9) The volume of milk that is kept for use on the farm is the difference between the percent of total volume of milk sold in the form of various dairy products and 100 per cent, which represents the total milk production. A larger proportion of milk is kept for use on the farms in most of the counties west of the river.



Source: Fifteenth Census of The U. S.,
South Dakota Agriculture,
Second Series, 1930. Calculated
from dairy products sold in 1929.

Figure 10--Milk Equivalent Of Butterfat Sold In Per Cent
Of Total Milk Produced In 1929.



Source: Fifteenth Census of The U. S.,
South Dakota Agriculture,
Second Series, 1930. Calculated
from dairy products sold in 1929.

The sale of butterfat is of greatest importance for the entire state. (See figure 10) In the northeastern counties the sale of butterfat accounts for 70 to 85 per cent of the total milk sold.

The sale of whole milk and cream both retail and wholesale ranked second to butterfat in 1929, accounting for 5.1 per cent of the total milk sold. Separate data on the sale of whole milk and cream retail and wholesale are not available for 1929. The sale of whole milk and cream retail is greatest near towns and cities where there is a large demand for market milk and cream. The greatest demand for wholesale milk occurs in the larger cities, where wholesale distribution is practiced, and in those cities in which are located creameries that are manufacturing products other than butter.

It has been pointed out that butterfat production is the product of general farming. Due to the nature of the dairy enterprise, the forms in which the major part of the product of this industry are sold, and the transportation facilities, there have developed market outlets peculiar to regions of rather scattered butterfat production. The centralizer creamery, with its network of cream stations, and the local creamery are important outlets for butterfat.

Section III - BUTTER MANUFACTURING AND PROCUREMENT INDUSTRY

Introduction

Dairy products are the joint product of the farm and factory. Each is highly dependent on the efficient operation of the other, and can hardly escape from its influence. The processing and marketing of butter are closely related phases of creamery management. In small creameries where one man is generally in charge of the entire creamery management, some phases of the operations are likely to be performed less efficiently. Usually the marketing phase suffers, as the creamery manager is generally a butter-maker. In the larger creameries these phases are usually somewhat separated. In areas of rather scattered butterfat production the problems of quality butter, maximum volume of efficiency per creamery and greater efficiency in the marketing of butter are of primary importance. The chief purpose here is to familiarize the reader with the development of the South Dakota dairy manufacturing industries, and then marketing practices and present problems.

Influence of Location on the Character of the Dairy Industry

South Dakota creameries lie far from the centers of demand for butter and other dairy products. Transportation costs and the perishable nature of the product enforce the regional distribution of dairy manufacturing industries with reasonable regularity, so that those whose products are of low specific value and high perishability are produced near to the market and those with opposite characteristics farther away.

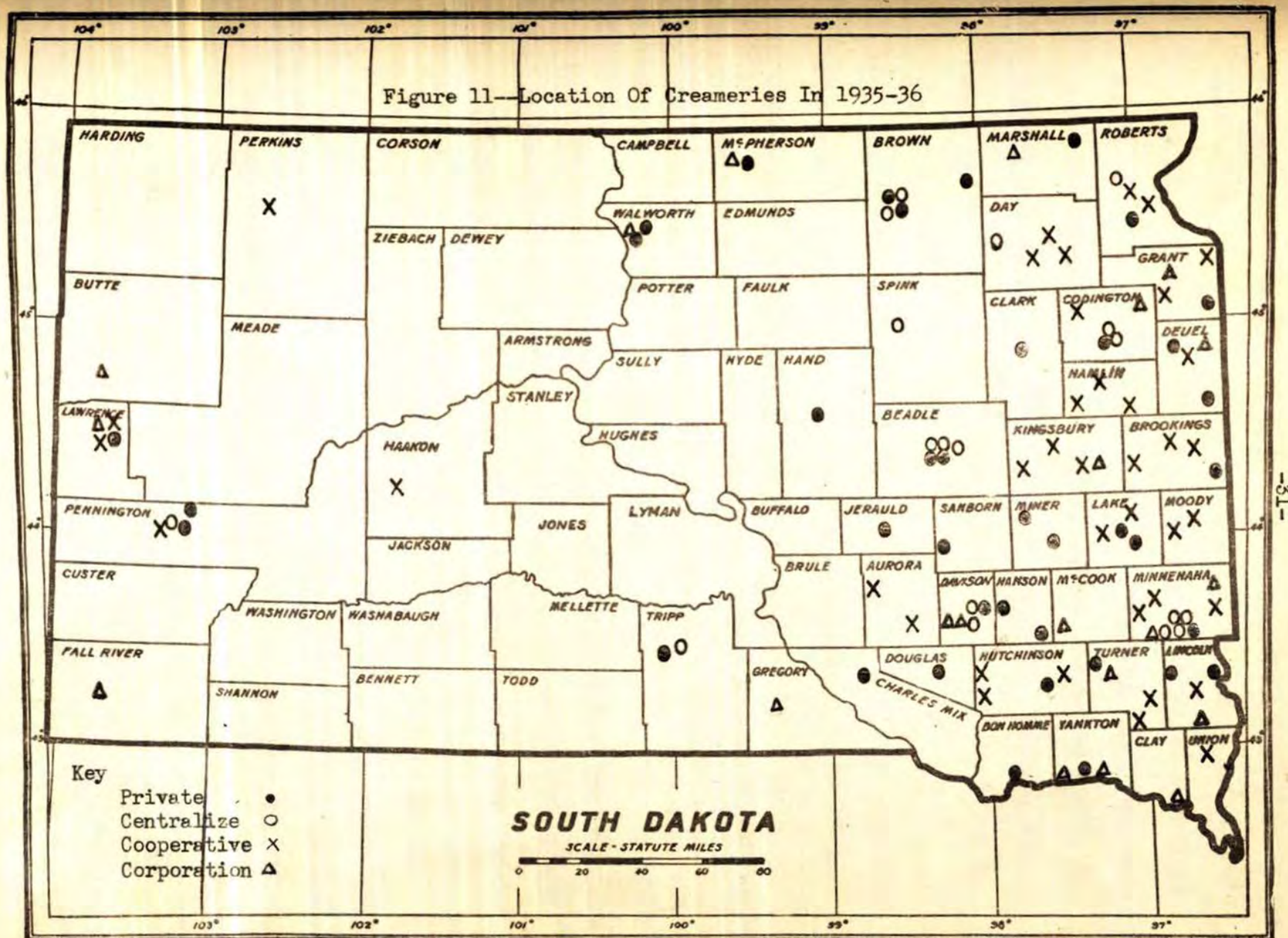
The eastern edge of South Dakota is a part of the western frontier of the middle northwest butter producing area.

Within the creamery industry in this area there have developed two types of market outlets. First, the centralizer creamery¹ with its network of cream stations serving the less intensive producing areas, the other, the local creamery² serving the heavier producing areas. Each hold an important position in South Dakota. During the past few years aggressive local creameries have expanded in volume and are taking on many of the characteristics of the centralizer system.

Transportation facilities, both railroad and roads, and scattered farm production are the important factors that aided in the establishment of the present creamery industry. The coming of hard surfaced and graveled roads has brought the farm producer closer to a market for his butterfat. The coming of good roads, accompanied by the pressure for volume of butterfat, brought about the development of cream routes. By this method of cream procurement, creameries were then able to increase their volume, the quality of the cream, and offer the producer quicker and better service and a better price for their product.

Figure 11 shows the location of creameries classified by type of ownership in South Dakota in 1935-'36. Eastern South Dakota, because it lies in a region of relatively heavy dairy output, is the main creamery butter production area. Local creameries predominate in this section. There is no very definite demonstration of local or

-
1. Centralizer creameries are stock owned, privately owned and cooperatively owned plants which obtain their large volume through a system of cream stations and rail shipments.
 2. Local creameries are either stock owned, privately owned, or cooperatively owned with much smaller volume obtained through direct deliveries from surrounding farms, or by the use of cream routes.



Source: Creamery Reports from Annual Reports
of South Dakota Department of Agriculture.

centralized creamery area. However, there are more centralizers in the northeastern, western, and south western portion east of the river.

In 1935-'36 there were 118 creameries in South Dakota classified as follows: independent, 39; local cooperative, 39; local corporations, 22; stock centralizers, 16; and cooperative centralizers, 2. This is a reduction of 8 creameries since 1934-'35. On Sept. 30, 1936, the South Dakota Dairy Association reported 114 creameries in operation.

Insufficient volume during the prolonged drought period accounted for part of the decrease. If summer production picks up in 1937, some of these creameries will reopen.

For the fiscal year 1935-'36, 29 creameries operating outside of the state were buying butterfat in this state.

Butter Production Trends

The nucleus of the great middle north western butter producing area includes Minnesota, Wisconsin, and Iowa. On the west lies North and South Dakota, Kansas, Nebraska, and Missouri; the southeastern border includes Ohio, Indiana, Illinois, and Michigan¹. Preliminary estimates for this area in 1936² show that approximately 77 per cent of the butter produced in the United States was produced in this region. The western frontier produced about 19 per cent of the United States production and South Dakota about 2.4 per cent. South Dakota has maintained approximately the same relative position for the past fourteen years. Butter production in South Dakota accounts for about 13 per cent

1. Migell, Albert
Changing Status of the Iowa Dairy Industry.
Iowa Agr. Expt. Sta. Bull. No. 538, 1935

2. Crops and Markets, published by
United States Department of Agriculture.

of the butter production of the western frontier region. From a national standpoint, South Dakota is not very important in butter production.

There have been marked shifts in the methods of manufacturing and production of butter since 1879. In 1879 South Dakota produced 1,807,751 pounds of butter, all of which was manufactured on the farm. Creamery butter production in South Dakota began in May 1883 when the first creamery was established at Springfield, South Dakota.¹ The earliest report on creamery butter production was in 1889 when South Dakota produced a total of 15,659,757 pounds of butter, 3.9 per cent, or 532,107 pounds of which was creamery butter and the balance, 96.1 per cent or 15,127,244 pounds was farm butter. (See Table ³/₄ and Figure 12). The change to factory butter steadily increased up until 1934 when factory butter accounted for 81.9 per cent of the total production. Total butter production in 1934 was 47,584,000 pounds of which 81.9 per cent was manufactured in creameries. Since 1929 farm production has accounted for about 18 per cent of the total production².

The preliminary estimate on creamery butter production in 1936 was 39,784,000 pounds, an increase of 9.3 per cent over the 1935 estimate. As indicated in figure 2, creamery butter production has been steadily increasing since 1921. A slight slump in production occurred in 1933, but now is slowly recovering.

-
1. Vogel, J. E., Mgr. The Bonden Company, Produce Division, Sioux City, Iowa. Private communication.
 2. Division of crops and markets, Bureau of Agricultural Economics, United States Department of Agriculture.

Table 5 — Production of Farm and Creamery Butter in South Dakota
1879 - 1934¹

Year	Total Butter pounds	Creamery Butter pounds	Farm Butter pounds	Percent of Total Production	
				Farm	Creamery
1879	1,807,751	—	1,807,751	100.	0.0
1889	13,659,757	532,513	13,127,244	96.1	3.9
1899	23,573,077	6,172,107	17,400,970	73.9	26.1
1909	23,125,255	9,495,608	13,629,647	59.9	40.1
1919	27,879,845	17,612,674	10,267,171	36.9	63.1
1929	50,208,361 ³	40,893,751	9,314,610	18.6	81.4
1934	47,548,000 ³	38,948,000 ⁴	8,600,000 ²	18.1	81.9

- ¹ 13th Census, 1910, Manufactures, Vol. I.
14th Census, 1920, Agriculture, Vol. IV and V; Manufactures Vol. X.
15th Census, 1930, Agriculture, Vol. IV; Manufactures, Vol. II.

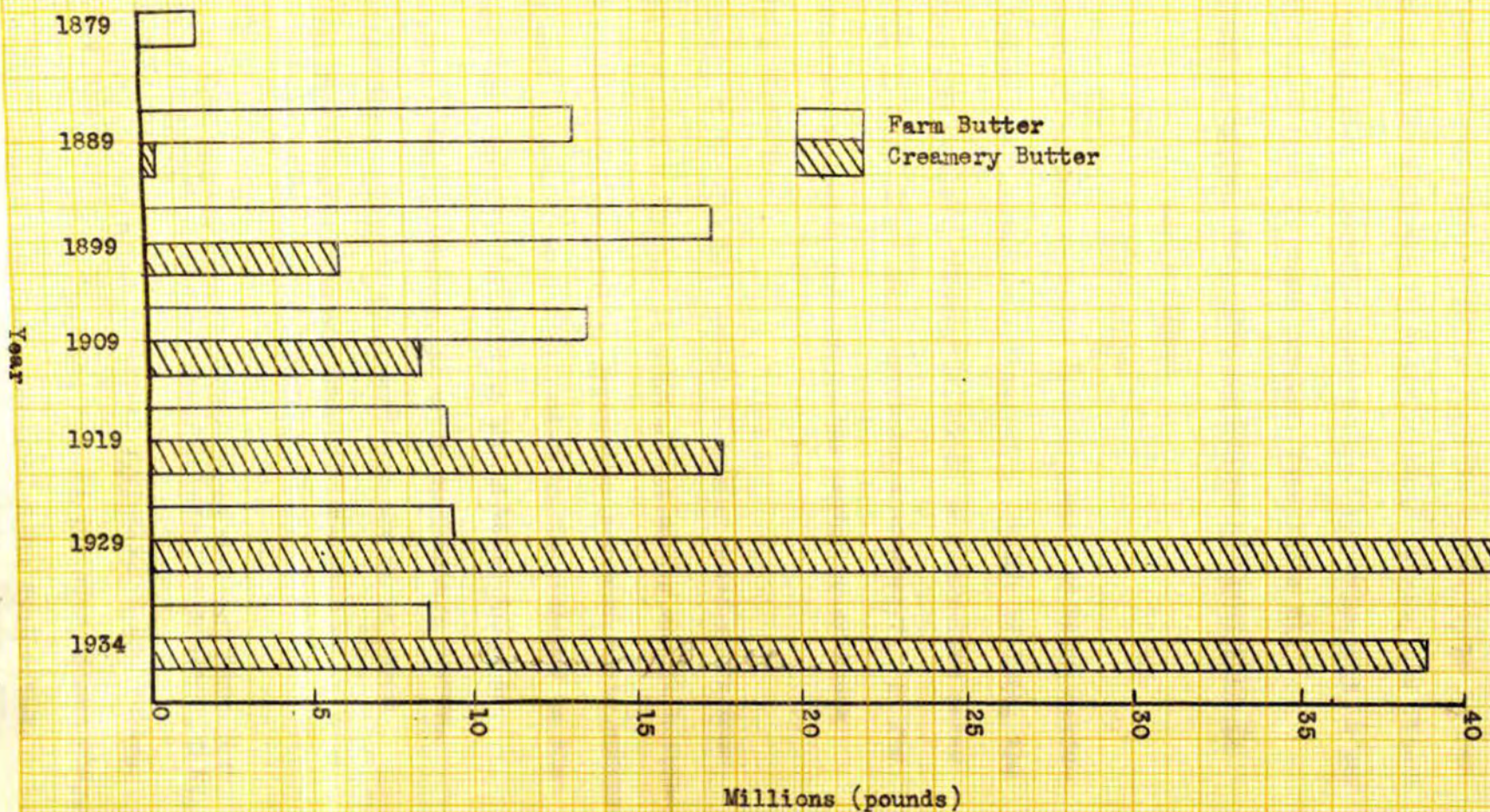
- ² Division of Crops and Livestock Estimates, Bureau of Agricultural Economics, United States Department of Agriculture, Private Communication.

- ³ Calculated by adding farm and creamery butter produced.

- ⁴ Year Book of Agriculture, United States Department of Agriculture, 1936.

Figure 12. Production of Farm and Creamery Butter In
South Dakota From 1879-1934

Source: Table 3



Butter made by cooperative creameries has been steadily increasing since 1926¹. In that year cooperative creameries manufactured 25 per cent of the total butter produced in South Dakota.² During the fiscal year 1955-'56 cooperative creameries manufactured approximately 35 per cent of all the butter made in South Dakota. (See Table 6).

Historical Changes in Number, Character and Volume of Creameries In
South Dakota

Introduction

It is interesting to note that the first creamery to begin operation in South Dakota was located at Springfield. In May of 1885, the commercial club of Springfield offered Mr. N. R. Hathaway five acres of land and \$1500 in cash if he would establish a creamery³. As far as the writer is able to learn, this marks the beginning of South Dakota's creamery industry.

The first stage of the factory system of butter manufacture consisted of small creameries located in communities having enough butter-fat to support a manufacturing plant. Creameries procured their butter-fat by two methods. First, milk was delivered to the creamery by the farmers, skimmed, and the milk returned to the producer while he waited. Soon these small creameries, in order to maintain volume, established cream routes and milk stations^{4,5} on the first cream routes and in the first cream stations, the milk was skimmed by hand

-
1. Statistics of Farm cooperatives Business Organizations, 1920-1935. Farm Credit Administration, Cooperative Division, Washington, D.C., May, 1936, page 36.
 2. Division of crops and markets, Bureau of Agricultural Economics, United States Department of Agriculture.
 3. Vogel, J.E., Mgr. The Borden Company, Produce Division, Sioux City, Iowa. Private communication.
 4. Youngstrom, C.O., Theophilus, D.R.; Atkeson, T.W.; Tucker, T.N. Efficiency of Cream Stations in Cream Collection. Idaho, Agr.

by the operators. A few years later the power cream separator was used in the stations, and gradually the skimming routes were eliminated, and cream stations replaced the milk stations. This was the prevailing type of creamery about 1885 to 1900, and it became known as the centralizer system.

The need for furnishing a market for butterfat in the less highly developed dairy sections and the importance of large volume in manufacturing was realized in the beginning of South Dakota's creamery industry. During this early period, a large number of creameries was established. In 1895, 89 creameries were in operation¹. A large portion of the creameries were operated on the cooperative basis. In 1901 there were 150 creameries in operation. This was the high point in creamery numbers for this period.

The early expansion in creamery numbers was brought to a close around 1910. The character of the reaction of creamery numbers to the decline and recovery of dairying from 1910 to 1936 is shown in Table ~~4~~. The slump in creamery numbers began in 1912, a couple of years after the decline in milk cow numbers. The low point in creamery numbers was reached in 1918 when there were 78 in operation. Immediately following, creamery numbers gradually increased until 1933. That year marked the second high point in creamery numbers, with 137 creameries in operation. A drastic drop in creameries took place in 1934, and in 1936 there were 114 in operation.

1. United States Department of Agriculture, Bureau of Animal Industry, Bulletin No. 16, 1895.

Table ⁴⁰ 8 -- Number of Creameries and Cream Stations in South Dakota
1910 - 1936¹

Year	All Creameries	Cooperative Number	Creameries % of Total	Cream Stations
1910	103	—	—	700
11	104	43	41.3	700
12	91	37	40.7	525
13	86	34	39.5	900
14	89	35	39.3	900
15	82	34	41.5	900
16	79	33	41.8	900
17	78	38	48.7	750
18	78	38	48.7	720
19	85	38	44.7	800
20	85	38	44.7	800
21	85	32	37.6	850
22	84	31	36.9	850
23	85	30	35.3	850
24	86	29	33.7	900
25	90	29	32.2	950
26	90	30	33.3	980
27	100	35	35.0	1050
28	101	35	34.7	1100
29	113	38	33.6	1117
30	113	37	32.7	1100
31	119	38	31.9	1400 to 1500 ^x
32	118	40	33.9	1400 to 1500 ^x
33	137	50	36.5	1300 to 1400 ^x
34	126	41	32.5	1200 to 1300 ^x
35	118	41	34.7	1000 to 1200 ^x
36	114	41	36.0	902 ²

¹ Data on creamery numbers for 1934 and 1935 from Annual Reports of South Dakota Department of Agriculture. All other data from State Dairy Expert Records and the South Dakota Dairy Association Records. Cream station numbers from State Dairy Expert Records, South Dakota Dairy Association Records and South Dakota Department of Agriculture. All data prior to 1934 collected by C. Shanley, Extension Economist in Marketing, South Dakota State College.

² As of May 19, 1936.

^x Estimated.

During the entire period, the number of cooperative creameries fluctuated but little. Early in the period 1910-'36, cooperatives occupied an important position in the market outlets for butterfat. They constituted between 40 to 48 per cent of all creameries. The "low" in cooperative creameries was not reached until 1924, approximately 8 years after the low point in all creamery numbers. Beginning in 1925 cooperatives gradually increased until in 1936 they numbered 41, or 36 per cent of all the creameries.

Size of Creameries

While the average creamery was producing 329,557 pounds of butter in 1935-'36, the size of the plants varied widely. The nine largest creameries averaged nearly 1.5 million pounds output per plant in 1935-'36. They accounted for 7.6 per cent of the total number of creameries in the state, and produced 38.1 per cent of the total output, or approximately 14.8 million pounds of butter. (See Table 5)

The group of 32 smallest creameries, in the class under 100,000 pounds of butter averaged about 54,000 pounds per creamery in 1935-'36. These creameries accounted for 27.1 per cent of the total number of creameries and produced an aggregate of 1,714,710 pounds of butter, or 4.4 per cent of the total output of the state.

In 1935-'36, 31.4 per cent of the creameries producing 13.9 per cent of the total output, were producing (per creamery) between 100,000 and 200,000 pounds of butter or an average of 146,023 pounds.

The decrease in numbers of creameries and the increase in production of butterfat in 1935-'36 brought about an increase in output of 56,468 pounds of butter, for the average of all creameries in South Dakota. The average output per creamery in 1934-'35 was 276,089

Table 5 — Volume of Butter Produced by South Dakota Creameries¹
(Classified by volume of butter manufactured)

Size of Groups Pounds of Butter Manufactured	Creameries Reporting No.	% total	Butter Manufactured Pounds	% total	Average Size Creamery Pounds of Butter Manufactured
July 1, 1934 - June 30, 1935					
All Creameries	124 ²	100.0	33,863,044.3	100.0	273,089
Under 100,000	44	35.6	2,435,550.3	7.2	55,353
100,000 - 200,000	33	26.6	4,567,502.0	13.5	138,409
200,000 - 300,000	16	12.9	3,628,916.0	10.7	226,807
300,000 - 400,000	6	4.8	2,121,746.0	6.3	353,624
400,000 - 500,000	4	3.2	1,775,345.0	5.2	443,836
500,000 - 600,000	5	4.0	2,793,100.0	8.2	558,620
600,000 - 1,000,000	10	8.1	7,205,469.0	21.3	720,547
1,000,000 - over	6	4.8	9,335,416.0	27.6	1,037,268
July 1, 1935 - June 30, 1936					
All Creameries	118	100.0	38,887,691	100.0	329,557
Under 100,000	32	27.1	1,714,710	4.4	53,585
100,000 - 200,000	37	31.4	5,402,841	13.9	146,023
200,000 - 300,000	17	14.4	4,078,834	10.5	239,931
300,000 - 400,000	6	5.1	1,910,913	4.9	318,486
400,000 - 500,000	6	5.1	2,607,717	6.7	434,620
500,000 - 600,000	2	1.7	1,078,809	2.8	539,405
600,000 - 1,000,000	9	7.6	7,270,836	18.7	807,871
1,000,000 - over	9	7.6	14,823,031	38.2	1,482,303

¹ Annual Reports from South Dakota Department of Agriculture

² Total creameries, 126; 2 did not report to State Department of Agriculture for fiscal year 1934-'35

pounds of butter. (See Table 5)

The greatest death loss from 1934-'35 to 1935-'36 occurred in the class of creameries producing under 100,000 pounds of butter annually. Twelve creameries in this class failed during this period. The condition of the existing smaller creamery in 1935-'36 was somewhat worse, because their average production was about 1,400 pounds under the 1934-'35 figure.

The greater number of the smaller creameries lie in the central eastern part of South Dakota. Keen competition of the larger creameries may result in a further decrease in numbers of the smaller creameries.

Some of the most urgent problems of the industry in South Dakota are centered about this question of volume. Volume is closely related to costs of manufacture, transportation problems, quality program, efficiency of marketing, and other phases of creamery management, all of which are related to the births and deaths of creameries.

Types of Creameries

South Dakota is served by three types of creameries, local cooperatives, independents, including small incorporated creameries, and stock and cooperatively owned centralizers.

In the fiscal year July 1, 1935 to June 30, 1936, there were 118 creameries in operation, classified as follows: independents, 39; local cooperatives, 39; local corporations, 22; stock owned centralizers, 16; and cooperatively owned centralizers, 2. Table 6 shows the relative importance of the cooperative, independent, corporation, and centralizer creameries.

Table 6 — Volume of Butter Produced by South Dakota Creameries¹
(Classified by Type of Creamery)

Type of Creamery	Creameries Reporting		Butter Manufactured		Average Size of Creamery Pounds of Butter
	No.	% total	Pounds	% total	
July 1, 1934 - June 30, 1935					
Total all Types	124 ²	100.0	33,863,044.3	100.0	273,089
Independent ³	43 ²	34.8	4,482,200.3	13.2	104,237
Cooperative ⁴	38 ²	30.6	10,413,475.0	30.8	274,039
Corporation ⁵	23	18.5	3,838,072.0	11.3	166,873
Centralizer ⁶	20	16.1	15,129,297.0	44.7	756,465
Total Cooperative ⁷	40	33.1	16,867,840.0	49.9	422,271
July 1, 1935 - June 30, 1936					
Total all Types	118	100.0	38,887,691	100.0	329,557
Independent ³	39	33.0	4,830,813	12.4	123,867
Cooperative ⁴	39	33.0	11,664,522	30.0	299,090
Corporation ⁵	22	18.7	4,324,928	11.1	196,588
Centralizer ⁶	18	15.3	18,067,428	46.5	1,003,746
Total Cooperative ⁷	41	34.7	14,277,001	36.7	348,220

¹ Annual Reports from South Dakota Department of Agriculture

² Total creameries, 126; 1 independent and 1 cooperative did not report to the State Department of Agriculture for fiscal year 1934-'35

³ Independent—individually owned or a partnership.

⁴ Cooperative—local producer owned.

⁵ Corporation—stock owned creameries.

⁶ Centralizer—includes stock owned and cooperative centralizers.

⁷ Total cooperative—includes local and centralizer cooperative creameries.

Local and centralized cooperative creameries occupy an important position in South Dakota's creamery industry. In 1935-'36, 34.7 per cent of the creameries were cooperative, manufacturing 36.7 per cent of the total creamery butter. Approximately the same relationship existed in the previous year, as indicated in table 5.

Stock centralizer creameries are the most important butter manufacturers in the state, manufacturing in 1934-'35 about 35.6 per cent of the butter and in 1935-'36 about 39.9 per cent. Independent and small corporation creameries are the most numerous, but manufacture the least amount of butter.

Some indication of the average volume of business of different types of creameries can be gained from table 6. The average output of all creameries in 1935-'36 was 329,557 pounds. Local cooperatives averaged 299,090 pounds; independent, 125,867 pounds; local corporations, 196,588 pounds, and stock and cooperative owned centralizers, 1,003,746 pounds. Many of the larger local cooperative creameries produced over 600,000 pounds of butter, equaling, and in many cases surpassing, the volume of some of the centralizers. Many of the independents, local corporations, and a few of the local cooperative creameries produced less than 100,000 pounds of butter annually.

Cooperative creameries are found most frequently in areas where butterfat supplies are more concentrated and the community of interest of patrons is strong. The highly capitalistic organization of the centralizer creameries is of value in South Dakota's creamery system, as long as a large amount of in and out, and "syrup pail" dairy farming is produced in the state.

Cooperative, independent, and local corporation creameries are generally larger in the extreme eastern part of the state. There are interspersed in this area a large number of small creameries that may sooner or later be forced out of business. Creameries in the Black Hills are all relatively small.

In practice, centralizers, with their cream station system of collection, have often been forced to buy low quality cream for which they necessarily pay low prices. Nevertheless, they have furnished a market in localities where no market would otherwise exist and so have played an important part in the development of South Dakota dairying.

History of the Centralizer Cream Station System

About 1900 marked the beginning of the centralizer cream station system. Among the factors accounting for the birth of this system were: first, the invention of the continuous centrifugal cream separator and its wide spread use and acceptance by the farmers. Secondly, the need for furnishing a market for butterfat in the scattered production areas far beyond reach of the creamery. By this time a large number of small creameries had been in operation a few years and were facing failure because of lack of volume. The cream station appeared to be their solution.

In the years to follow, cream stations grew rapidly in numbers. A large number of stations were established by creameries in surrounding states¹. The transition from the skimming station and skimming routes to the cream station came about rather slowly. It was not until

1. Vogel, J. E., Mgr., The Borden Company, Produce Division, Sioux City, Iowa, Private communication.

about 1905-1907 that the last of these stations were replaced by cream stations.^{1,2}

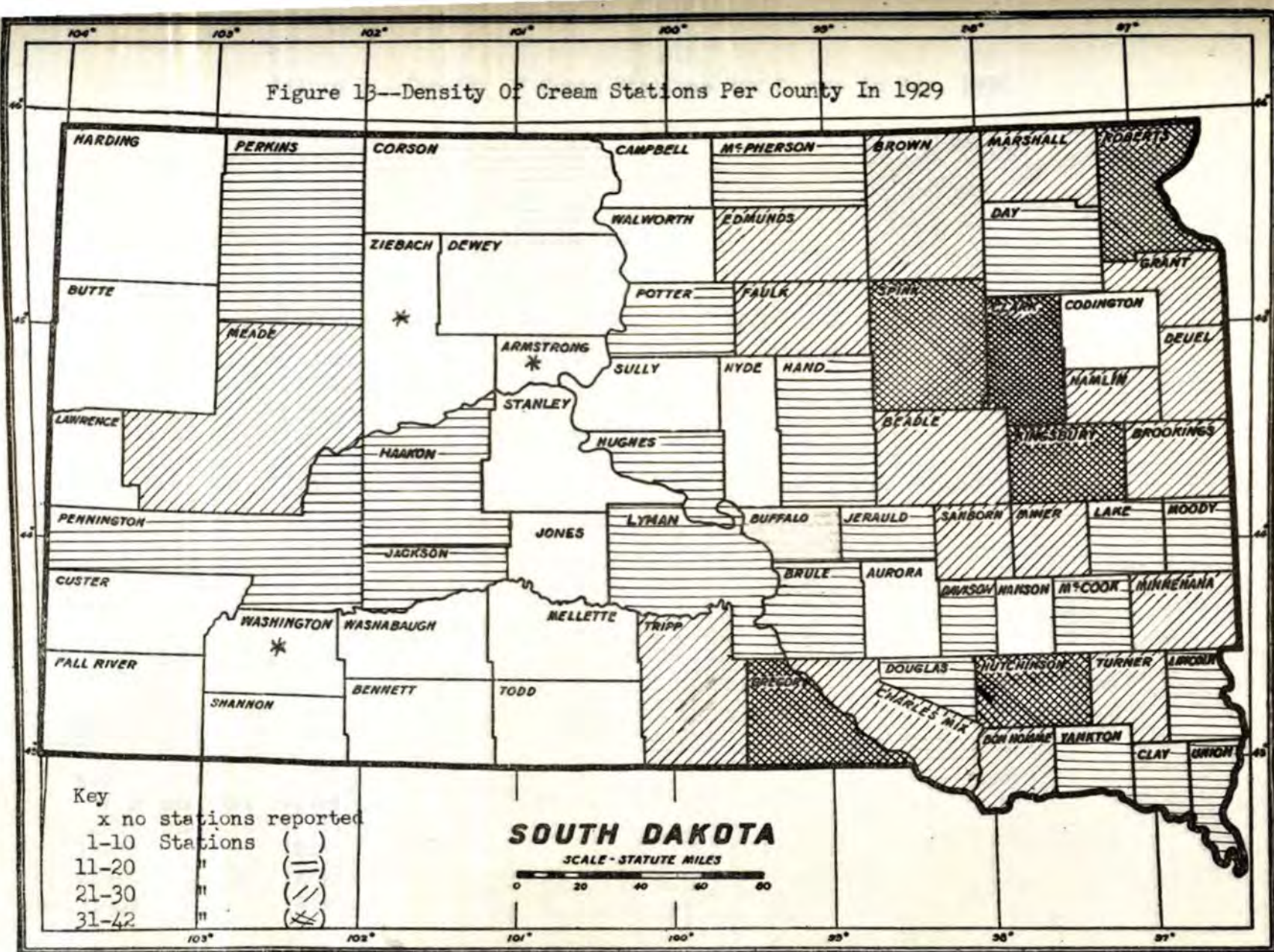
Little is known of the history of the cream station prior to 1910, and since then available statistics are none too reliable. In 1910 there were 700 cream stations in the state. The number of cream stations increased and remained relatively constant until 1917, when a decrease in numbers took place. By 1924 the numbers of cream stations reached the previous level of 1916. From 1924 to about 1933, their numbers increased rapidly to date. On May 19, 1936 there were 902 cream stations in operation.

The importance of cream stations as a marketing agency for butterfat is indicated by their number and the volume of butterfat handled. In 1929, there were 1,117 cream stations, handling 25,630,161 pounds of butterfat or about 48 per cent of the total butterfat sold by farmers³.

Figures 13 and 14 indicate the relative importance of this system in furnishing an outlet for butterfat produced in remote areas of scattered production. The greatest density of cream stations in 1929 occurred east of the river. In this area cream stations ranged from 21 to 42 per county. (See figure 13)

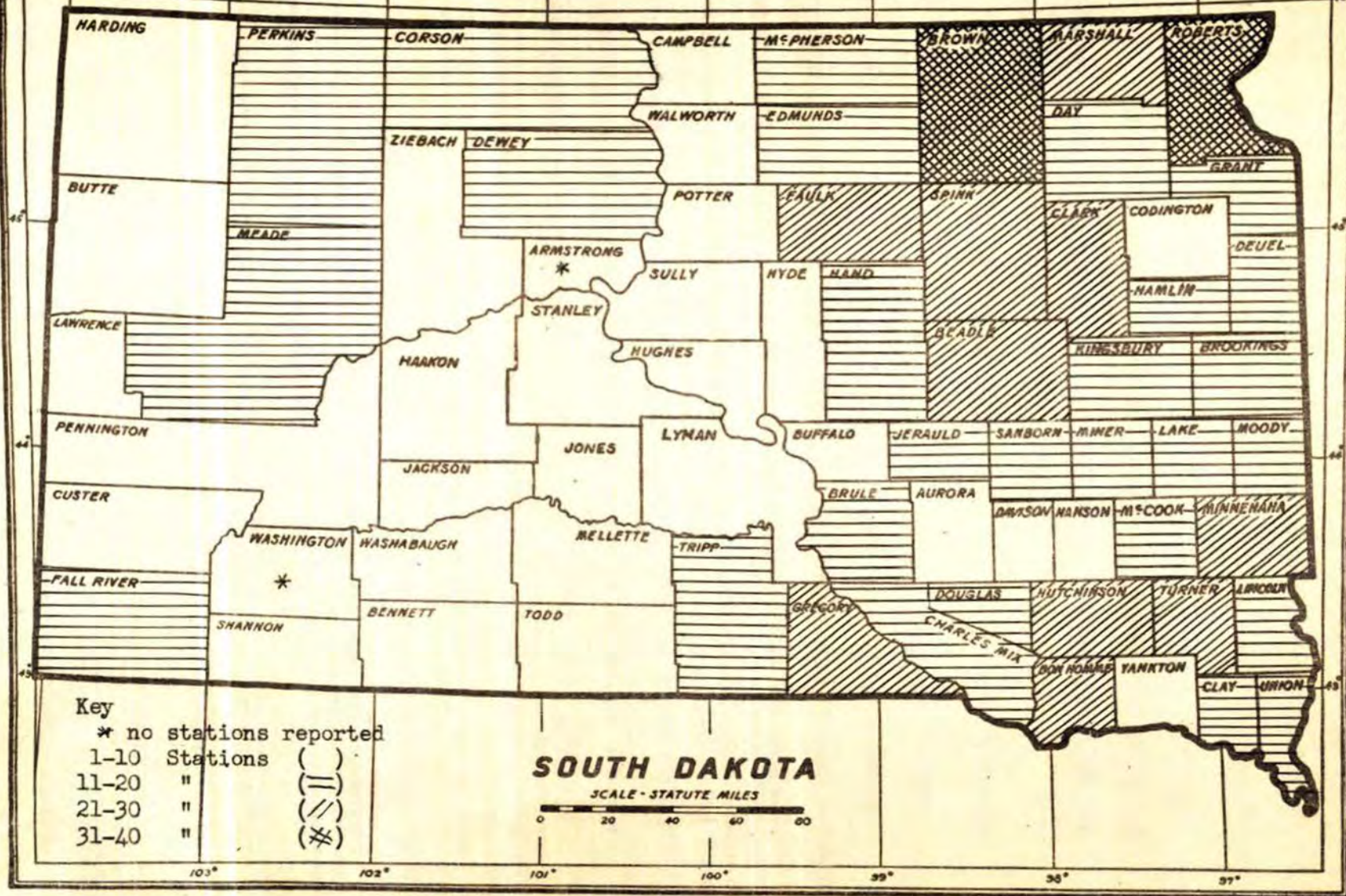
Eight years later, 1936, the cream station area remained in approximately the same position as in 1929, but there has been some

-
1. Smail, E. W., Sixth Annual Report of the Food and Dairy Commissioners State of South Dakota, 1906.
 2. Youngstrom, C. O.; Theophilus, D. R.; Atkeson, F. W.; Tucker, G. N. Efficiency of Cream Stations in Cream Collection. Idaho Agr., Ex. Sta., Bull. No. 193, 1932
 3. Assembling of Butterfat through Cream Stations
Fifteenth Census of the United States, Census of Distribution
No. A-201, 1932



Source: Assembling of Butterfat Through Cream Stations, Census of Distribution, Fifteenth Census of United States, Distribution No. A-201, 1932.

Figure 14--Density Of Cream Stations Per County In May, 1936



Source: South Dakota State Department of Agriculture.

change in density. (See figure 14) In 1936 two counties, Brown and Roberts, had over 31 cream stations each. Thus it is evident that the cream stations still hold a prominent place as outlets for butterfat.

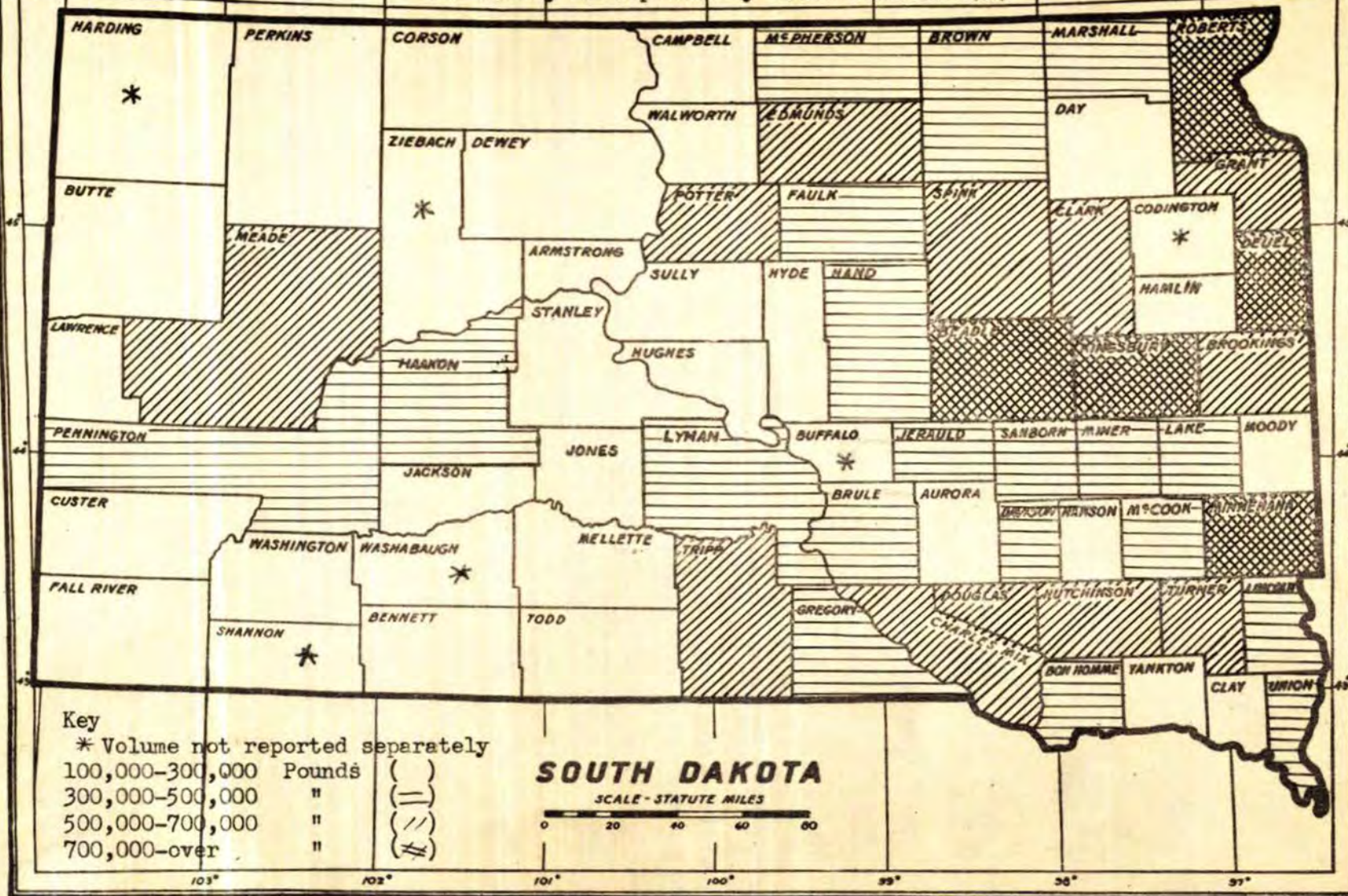
The volume of butterfat handled by cream stations per county, in 1929, as shown in figure 15, is greatest in the eastern part of the state and in six counties west of the river.

The importance of the cream station is also indicated in figure 16, which shows the percentage of farm sales of butterfat through cream stations by counties.¹ The greater portion of farm sales of butterfat, to cream stations occurred in Haakon, Potter, Brule, Jerauld, Sanborn and Davison Counties. Stations in these counties received over 75 per cent of the total butterfat produced in each county. In the southeastern and northern counties, farm sales to cream stations ranged from 6 to over 50 per cent of the total farm sales. For the major portion of the state 50 to 74 per cent of the farm sales was to cream stations. Direct shipping, cream routes, and "door delivery" of butterfat are the most important methods of securing cream in areas of low cream station sales. Direct shipping and cream routes are most common in moderated production areas, while door delivery is limited to a small area surrounding a creamery.

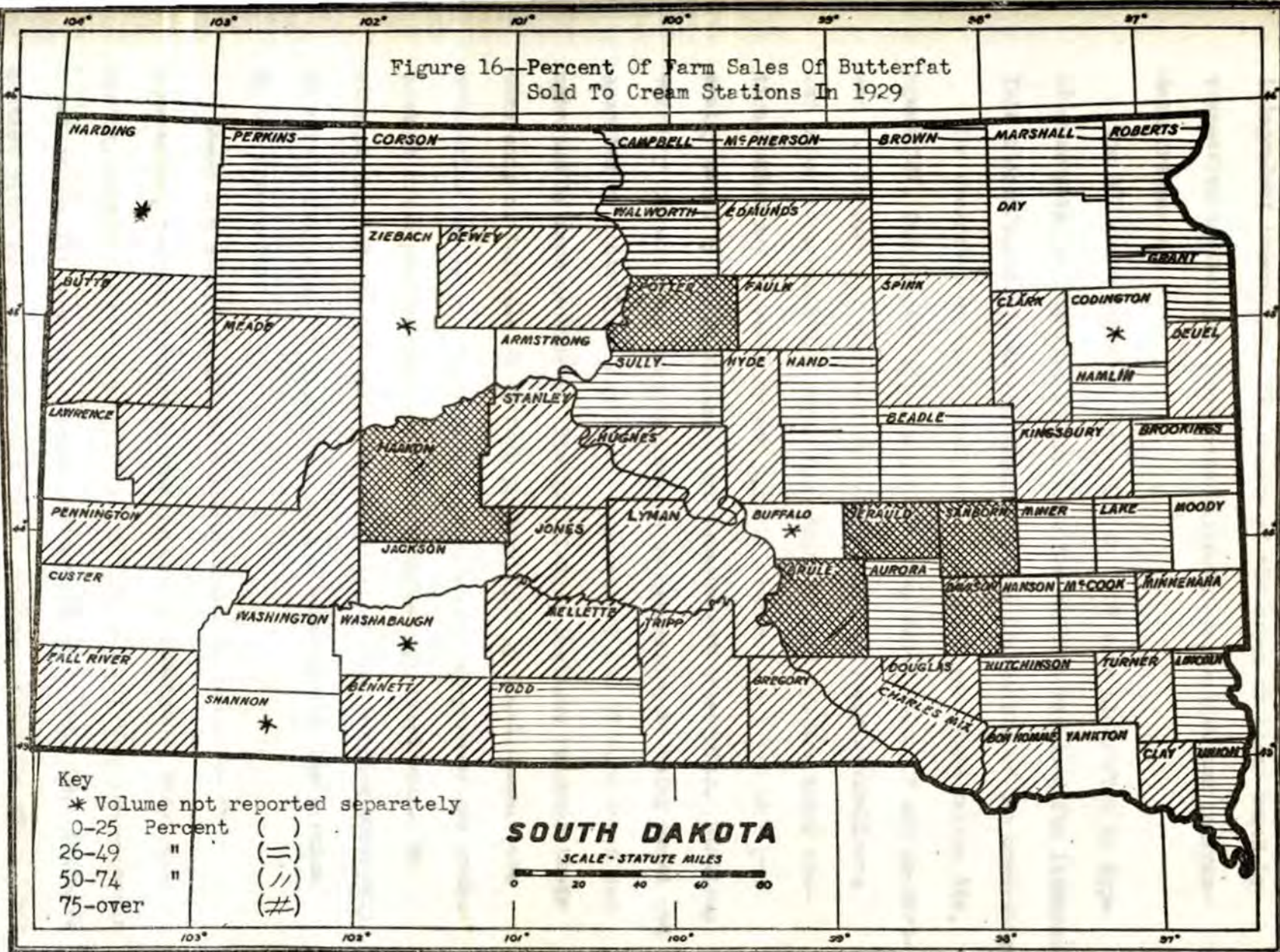
Analysis of the numbers, type, and ownership of cream stations in 1936 discloses many interesting facts. Not all the cream stations operating in South Dakota are owned by creameries operating in the state. Approximately one-third of the stations are owned by creameries outside of the state and located relatively near South Dakota. The out-of-state stations are owned by centralizers, cooperatives and

1. Ibid.

Figure 15—Pounds Of Butterfat Shipped By Cream Stations,
Per County As Reported By Creameries In 1929



Source: Assembling of Butterfat Through Cream Stations,
Census of Distribution, Fifteenth Census of
United States Distribution. No. A-201, 1932.



Source: Assembling of Butterfat Through Cream Stations,
Census of Distribution, Fifteenth Census of
United States, Distribution No. A-201, 1932.

independent creameries. The owners of the cream stations owned by creameries in the state, are centralizers, cooperative and independent creameries.

The 902 cream stations operating in 1936 were classified by type of ownership, as reported at the time the station received its license. This classification does not clearly define the nature of the ownership.

The ownership of these stations are as follows: Corporation 352, agent 327, independent 149, cooperative 44, association 23 and co-partner 7. Corporation stations are those owned by stock centralizers and other incorporated creameries. "Agent" stations are those stations which may be owned by any type of creamery, but are more generally owned by the centralizer and independent creameries. Stations owned by cooperatives were divided as to ownership, 34 being owned and operated by centralizer and local cooperatives and 10 were owned and operated by farm producers. The association stations reported their ownership as follows: 9 by farm producers, 2 by local cooperative creameries and 12 by cooperative centralizers. Co-partner and independent cream stations are owned and operated by individuals. No attempt was made to determine the character of the reported ownership. It merely indicates the importance of the ownership of the station by the creameries.

Where the ownership of the cream stations is vested in the creameries, certain pronounced advantages are obtained. Under this system, creameries are insured of a definite volume; they can maintain a better quality program, control procurement cost and a more intimate contact with the producer through their agents. Producers owning their

stations do so because they can more efficiently market their product, netting more for themselves than they would by selling to other stations. Producer owned cooperatives are found where there is a relatively large volume of butterfat but not sufficient to warrant a creamery.

Section IV - MARKETING PRACTICES AND PROBLEMS OF SOUTH DAKOTA CREAMERIES

Introduction

The marketing practices of creameries begin when the milk is first drawn from the cow and ends when the finished product is placed in the hands of the consumer. Many things may happen to the finished product while enroute from producer to consumer, which have a direct or indirect reflection on the marketing practices employed. In this study the more important phases of the marketing practices of South Dakota creameries are presented.

Two distinct types of production and marketing organization are present in the South Dakota creamery industry, one type representing the individual creameries and incorporated stock organizations, the other producer cooperatives. Both have a definite objective. With marketing companies, whether private or cooperative, the means to the objectives sought are the same though the purposes of operation may differ.

The marketing of products may be summed up in the work merchandising². The merchandising of milk and by-products presupposes the production of commodities, conforming to market demands in both quality and quantity and distributed and sold in accordance with the best marketing practice. The business operations of a creamery may be classified as those which are primarily (1) manufacturing (2) business practices and (3) marketing practices³. The Marketing prac-

-
1. Acknowledgement is made to creamerymen and dealers in butter for information used in this section.
 2. Macklin, Theodore
Plans for Marketing Dairy Products Cooperatively
Published by American Farm Bureau Federation, Chicago, 1924
 3. Potts, Roy C., Marketing Practices of Wisconsin and Minnesota Creameries, United States Department of Agriculture Bull. No. 690, 1918

tices are concerned chiefly with the buying of the raw material from producers and the marketing of the products produced. In a general way the selling policies or practices are usually closely related to the business organization and management.

Undoubtedly the dominating note in the policy of the great merchandising companies has always been to ascertain first the wants of the buyers. To sell to advantage requires doing to advantage what consumers wish. What the consumers wish for is, therefore, the guiding part of every marketing company. Finally, the consumers of products originating on farms, are interested in these products not because they once were on farms, but because these goods fill some necessary need satisfactorily. In brief, the merchandising or marketing of dairy products is doing all those things which enable the company to satisfy its consumers. The best merchandiser is the one which pleases customers most.

The fact that the best merchandiser is the one who pleases customers most does not mean that the producers are disregarded. The merchandiser of dairy products may be the farm producer of milk, the creamery operator, or a middleman selling the producers products. The aims of all are the same, although a variety of methods may be employed to obtain those aims. If the merchandiser is able to satisfy the demand of the consumer, the producers will likewise benefit. He may be rewarded by a higher price of his product and an increase in volume of business. It finally sums down to the fact that in order to please the customer most, there must be a close contact and a feeling of cooperation between the producer, the distributor and the seller.

The early realization of this need of cooperation was a factor in the development of cooperative production and marketing of dairy products. The aims of cooperative butter marketing are to accomplish two fundamental things; first, to guarantee the economic reflection of consumer demand for butter according to quality; and second, to make, distribute and sell the resulting supply effectively.¹ To do the first requires paying the creamery prices based upon quality, as well as paying differential prices to the farmer for his grades of cream; and to accomplish the second requires an efficient sales organization.

The successful merchandiser, be he an individual dealer or a sales agency, must in addition to pleasing customers most, be the most able competitor. He must be the most able competitor in both bidding for the raw product and selling the finished product. Farm producers, because of necessity, generally follow the policy of selling their butterfat where they can get the most for it. Their prime interest is the income from that part of their farm enterprise. Prior to the cooperative movement and during its formation period, producers failed to receive a fair return for their product from the existing marketing agencies. Now that cooperative production and marketing of butter has obtained a definite position of importance in the creamery industry, it is evident that the cooperative creameries are offering some of the stiffest competition that stock centralizers and individuals have ever experienced.

1. Macklin, T.; Schaars, M.A.
Cooperative Marketing in Wisconsin

Wisconsin Agr. Expt. Sta., Bull. No. 401, 1928

A number of factors affect the marketing practices of creameries, and the prices paid for butterfat, many of them peculiar to areas of scattered butterfat production, as is the case in South Dakota. These factors may be classified according to their direct effect on the product and marketing practices and on the basis of time required in their control.^{1,2,3,4}

First, the quality of cream received is of prime importance because it has a direct bearing on the finished product and is closely related to the method of production and care on the farm. The quality of cream received is effected by density of butterfat production in the community, care of cream on the farm, method and frequency of delivery and grading and method of paying for quality.

Marketing consideration must be fully understood in order that a marketing program may be effective and efficient in a given area. Marketing considerations are affected by: volume of production, methods of sales influenced by local and central market sales, kind of product, volume, price basis, distance to market, methods of transportation and transportation costs, selling methods, shipping methods, car lot vs. less than car lot, and seasonality of production.

-
1. Holt, B. A., Combs, W. B.,
Judging Creamery Efficiency
Minn. Agr. Exp. Sta., Bull. No. 231, 1926
 2. Olson, T. M., Totman, Claire C.
Essentials in the Success of a Local Cooperative Creamery
S. Dak. Exp. Sta. Bull. 266, 1931
 3. White, William
Essentials for the Successful Operation of a Local Creamery
U. S. Dept. Agr. Misc. Pub., No. 37, 1930
 4. Anderson, Harry G.; Benton, Alva H.
Cooperative Marketing of Dairy Products
N. Dak. Expt. Sta. Bull. No. 238, 1930

Of the foregoing factors, some can be controlled in a relatively short period of time, some only over a longer period, if at all. The factors that are changeable rather quickly are; care of cream on the farm, method and frequency of assembling the product, grading methods and payments for quality, quality of butter made from a given quality of cream, price basis for local sales, particularly to patrons and methods of shipping butter.

The factors that are changeable slowly, if at all, are; density of butterfat production in a community, distance to market, seasonality of production, and volume of business.

In South Dakota, a highly flexible area of scattered butterfat production, the importance of the foregoing factors in formulating marketing policies and practices can readily be seen. At this time it is quite impossible to deal with each of these factors. They are of sufficient importance to warrant considerable study. Such studies would assist farmers and creamerymen in making the necessary adjustments in order that the producers and customers may both receive the best product and service.

Trends in Butterfat Purchases

Prior to 1910 creameries operating in South Dakota were the main outlets for butterfat. Local creameries predominated at that time. About 1910 the centralizer creameries, with their network of cream stations was meeting with high favor with the farmers. In 1910, butterfat sales to creameries operating in South Dakota accounted for 72 per cent of the total sales of butterfat. Butterfat sales to creameries outside of the state accounted for the remainder or 28

per cent of the total sales. As indicated in figure ¹⁷18, butterfat sales to creameries ^{in S.D.} decreased rapidly, until 1916. In that year creameries in South Dakota purchased 47 per cent of the total butterfat sold. During the same period sales of butterfat to creameries outside of the state increased rapidly. As a result of the increase in out-of-state sales, many local creameries failed. The low point in creamery numbers was reached in 1917 and 1918.

The period from 1916 to 1927 was one of readjustment in creamery numbers and marketing policies, as shown in Table ³2. The recovery of in-the-state sale of butterfat was due largely to the inefficient out-of-state system of buying cream. Increasing butterfat production encouraged the large centralizers operating outside of the state, to establish branch creameries in this state.

Nineteen twenty-seven marked the close of the readjustment period. Intra-state butterfat sales amounted to 51 percent of the total sales. Since this date, in-the-state sales have increased rapidly, while out-of-state butterfat sales fell off accordingly. During the same period creameries and cream stations increased rapidly.

For the fiscal year 1935-'36 in the state butterfat sales to creameries amounted to 86 per cent of the total butterfat sales to creameries. Total sales of butterfat to 118 creameries and 5 cheese factories for 1935-'36, in South Dakota, amounted to 32,233,607 pounds. Butterfat sales to cheese factories was 401,734 pounds. Out-of-state sales to 29 creameries accounted for 5,194,831 pounds, of butterfat. (See table 7) In spite of the decrease in creameries and cream stations in the last few years, in-the-state butterfat

Figure 17--Volume Of In And Out Of State Sales Of Butterfat
Produced In South Dakota From 1910 to 1936.

Source: Annual Report of South Dakota Department of
Agriculture. (Expressed in per cent of total
Sales, For fiscal year, July 1, to June 30.)

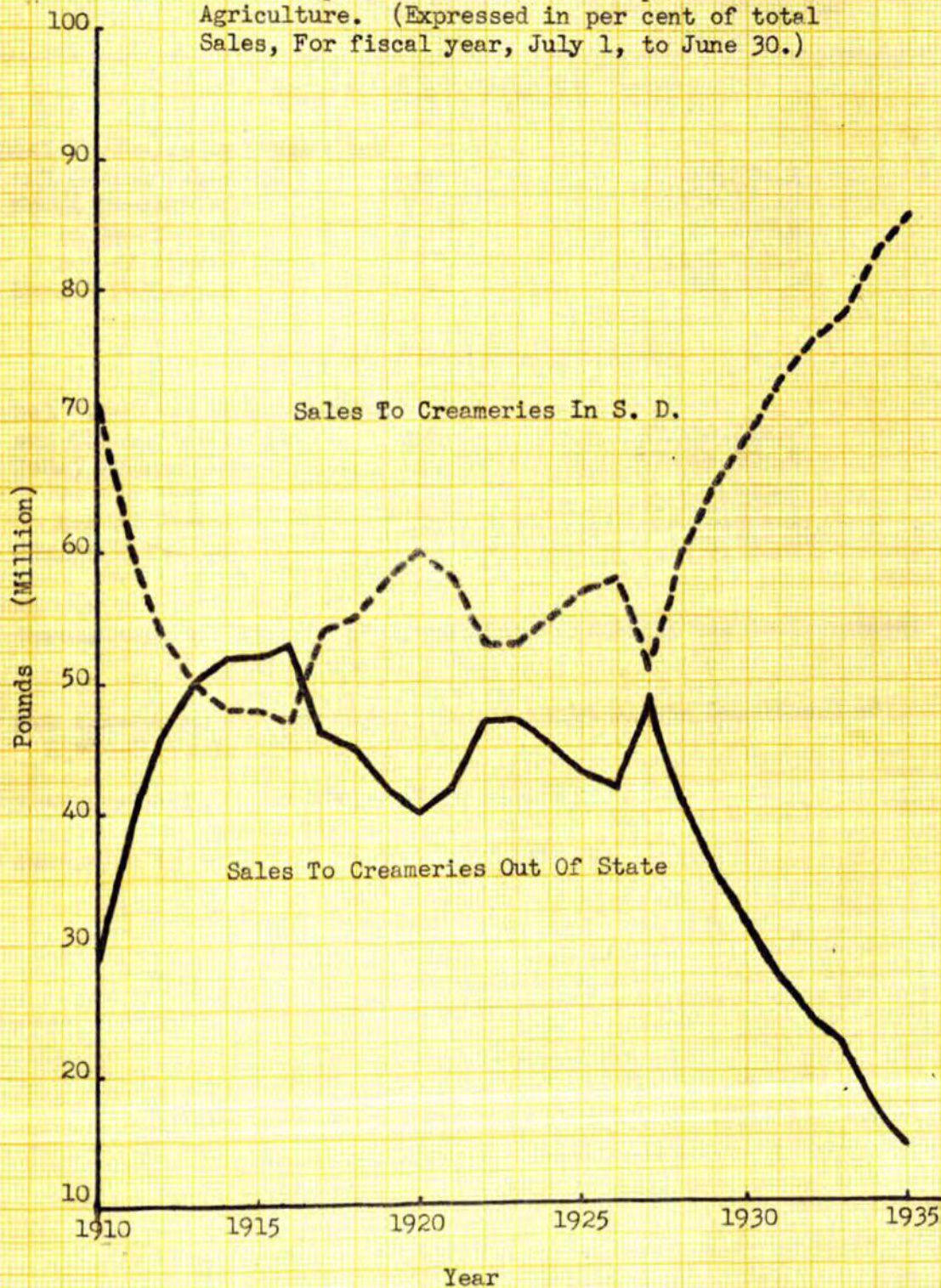


Table 7 — Volume of Butterfat Sold in South Dakota¹

	No. factories reporting	Pounds of Butterfat Purchased ³
July 1, 1934 - June 30, 1935		
Total Purchases by Creameries and Cheese Factories	155	38,910,778.4
Total Creameries	154	38,830,630.9
In the State	124 ²	32,403,697.9
Out of State	30	6,426,933.0
Cheese Factories	1	80,147.54
July 1, 1935 - June 30, 1935		
Total Purchases by Creameries and Cheese Factories	152	37,428,438.5
Total Creameries	147	37,026,704.6
In the State	118	31,831,873.3
Out of State	29	5,194,831.3
Cheese Factories	5	401,733.94

¹ Source - Annual Reports of creameries from South Dakota Department of Agriculture

² Two creameries did not report to the South Dakota Department of Agriculture in 1934-'35.

³ Includes estimates for incomplete reports.

⁴ Butterfat in milk sold to cheese factories.

sales continued to increase. The general use of cream routes enabled creameries in the state to hold their present position as the major outlets for South Dakota butterfat.

Buying Policies and Methods of Creameries

Introduction

The methods employed in marketing milk and cream by creameries have undergone marked changes in recent years. Prior to the general use of cream separators on farms, the local creamery prevailed and practically every creamery obtained its supply of raw material from farms in the vicinity of the creamery or skimming stations which were reached by major routes. Then, and for years following, payment for cream was generally made on a flat rate basis. Some cooperative creameries prorated the net receipts among the patrons according to the amount of butterfat they had furnished. Often, the centralizer creameries gave some consideration to the price paid by the local creamery; usually they followed the principle market quotations, and in many cases paid as little as they had to for butterfat. Cream stations operated by centralizers often paid extremely low prices for butterfat, sometimes as much as four cents below New York extras. Direct cream shippers received about the market quotation for "extras".

Various methods of payment for cream have been used and discarded. Many distinct methods and combinations of methods are in use today. A short discussion of some of the common methods may help in understanding the problem of paying for butterfat.

Undoubtedly, the cheapest method of cream procurement is where the producer delivers the cream at the creamery door. When creameries were pressed for more volume they developed new methods of cream

procurement. With the development of an extensive procurement program various methods of payment for services rendered have come into use, some of which are still in use now.

Methods of Buying Cream Through Cream Stations

The following four plans have been developed for buying station cream: straight commission per pound of butterfat, service charge, delivered price plan, and the delivered price guaranteed commission plan. From these four plans there have been developed many combinations of plans.

The original plan is the straight commission per pound of butterfat and means just what it says, without further explanation. This plan is still in use today.

In an attempt to reduce the cost of securing cream through cream stations, centralizer creameries operating in the Middlewest instituted a system called the "Service Charge Plan".¹ Under this plan the farmer was paid the price quoted at the creamery, but was charged a definite amount, usually 31 cents per delivery, regardless of size of delivery. The station operator received no commission, but instead was allotted a definite amount of the service charge for weighing, testing, shipping the cream and the cream station operator received the remainder. By the use of this plan it was hoped that the cost of collecting butterfat would be reduced, that advantages of local contact through cream stations could be retained, that some preference would be given to larger shipments, and that prices quoted could compete favorably with direct shipper prices. This system failed because

1. Youngstrom, C. O.; Theophilus, D. R., Atkenson, T. W., Tucker, T. N.
Efficiency of Cream Stations in Cream Collection
Idaho Agr. Exp. Sta. Bull. No. 193, 1932

some competitors did not agree with it and it was quite unsatisfactory to the farmers and station operators.

About 1931 the delivered price plan was commonly used by centralizer creameries in the Middlewest. Under this plan, the cream station operator signs a contract to sell all the butterfat he purchases to the creamery and is paid for the butterfat on a sliding scale, that is, the creamery will pay the operator so much under a definite quotation for butterfat delivered at the creamery. The differential paid varies among creameries and is influenced by certain factors, such as volume and efficiency in operation. The cream buyer has the company's book and issues the check to the producer for the delivery at a figure sufficiently below the creamery delivered price to take care of transportation and other expense and profit for the buyer.

Some creameries have modified this plan in an attempt to encourage an improvement in the quality of cream purchased. A differential is made between grades of cream, i.e., a lower price is paid for No. 2 cream than for No. 1. Both methods are in common use today.

The delivered price guaranteed commission plan is a recent development in an attempt to reduce cream station costs and to improve the quality of the cream purchased. In some localities, producers seem to have a desire to produce extremely thin cream. The transportation on such cream is heavy when figured on the basis of pounds of butterfat. To encourage some station operators to induce producers to produce rich cream, some creameries have placed the operator on agreed commission per pound of butterfat delivered at the creamery. The sta-

tion operator thereby increases his margin of profit by a reduction in transportation costs as a result of shipping richer cream.

To encourage cream improvement, a lower commission is paid on number two cream.

Methods of Paying for Cream at the Creamery Door

The general practice of South Dakota Creameries is to pay cash-on-delivery for butterfat. Competition between creameries and cream stations, and the fact that producers are in immediate need of the cash, are the factors accounting for the general use of this system. The general methods of payment remain the same for producers delivering cream at the door, direct shoppers and producers delivering their cream through cream routes.

The frequency of payment varies considerably with the cooperative creameries. The general practice is paying cash-on-delivery and generally a dividend at the end of the fiscal year. Other cooperatives made payment the first and the fifteenth of every month, less cash advances, if any. Some followed the practice of making payments once every month. In some cases cooperatives found it to their advantage to the pay-cash-on-delivery price, plus a dividend every six months.

Buying Cream by Grade

The infrequency of delivery of cream to creameries and other factors have resulted in the marketing of considerable cream of inferior quality. Over 30 years ago creamerymen in South Dakota recognized the limitations of payment of cream on a flat rate basis¹. Various methods for payment of cream on a graded basis were suggested and tried.

1. Smail, E. W., Sixth Annual Report of the Food and Dairy Commissioner State of South Dakota, 1906

One of the first methods called for the payment of cream on a graded basis conditioned on acidity, cleanliness and richness.¹

A number of factors have a direct bearing on the quality buying of cream. Foremost is the care of milk and cream on the farm. Grading and methods of payment, ranking next, must be adapted to attract the producer, giving him the incentive to take better care of his product. Density of butterfat production determines whether or not such a policy is practical from the standpoint of quantity and quality butter production. It also has a direct bearing on the methods of securing cream. Cost of procurement and manufacturing enter the picture with increasing force. Is it economically feasible for small creameries to churn butter by grades of cream? Must they rely solely on a general grading program to improve the quality of the butter produced?

Perhaps at no time in the history of dairying has there been such stress put on the quality of dairy products. Quality product is important to the success of every creamery. The cooperative creamery lends itself most favorably to the building of quality because the producers of cream have a direct interest in the creamery. Just how wide-spread is quality buying of cream?

At the present time it is impossible to determine the extent of buying cream on a quality basis. All creameries returning a questionnaire stated that they were buying cream on a quality basis. These

1. Smail, E. W., Sixth Annual Report of the Food and Dairy Commissioner State of South Dakota, 1906.

reports were received from all sections of the state, so in a general way indicate the extensiveness of quality buying. There appeared to be no uniform system of buying, nor method of handling the cream. Few creameries made separate churnings of the cream. They aimed solely at raising a little the quality of all butter produced, by churning all grades of butterfat together.

For various reasons, these creameries did not state their method of grading and paying for quality cream. One creamery paid for cream on a four grade basis. They were classifying their cream as No. 1, No. 2 and No. 3, (off-flavored cream) and No. 4 (rejected cream). The number two cream was bought at two cents less and the "off-flavored" cream was purchased at three cents less than the number one price.

The grading of cream in South Dakota is practiced in most every creamery and cream station. However, the tendency is to accept most all the cream brought to them. Under a condition such as this, there will likely be little improvement in quality of the total butterfat bought. Some of the better and more successful creameries maintain a very strict grading policy.

It is impossible to determine the volume of butter sold by grades in South Dakota. Estimated sales of total butter by grade as given by C. C. Totman, Instructor in Dairy Husbandry, South Dakota State College, are as follows: below 90, score 10-15%; 90-91, score 70%; 92 and above, 15-20%. The actual volume of butter sold by grade by creameries in South Dakota are only available for those creameries shipping to Land O' Lakes for the period 1930 to 1934. The five year

average of butter sales by grade are as follows: 88 score 4.3%; 89, 15.6%; 90, 44.4%; 91, 33.4% and 92, 2.3%. These figures indicate the need for, and the importance of a sound and uniform method of buying cream by grade.

One objection raised by creameries to cream grading is that the margin between the price of butter of different scores is not sufficient to warrant the payment of two to five cents premium for butter-fat. Poor quality cream brings the same price in most cases as the cream that is almost good enough to make sweet cream butter. Any grading scheme is bound to be criticized as arbitrary. However, imperfect a grading system may be, it should offer sufficient inducement for producers of low quality cream to improve their quality. According to the scheme of price differentials used by Land O'Lake for the various grades of butter, $3\frac{1}{2}$ cents per pound is to be gained by improving the score from 88 to 93 sweet cream butter. See table 8. This offers an opportunity for producers of low quality of butter to share in the higher prices paid for higher score butter.

Price differentials vary widely on the Chicago and New York market. Table 9 shows the average butter price differentials for the years 1933, 1934 and 1935. New York follows the policy of paying a higher price differential for 93 score butter than does Chicago. On the other hand, Chicago pays a higher differential for better scoring 90, 91, and 92. This fact, accompanied by the fact that most of South Dakota's butter will score 90 or 91 may account for the large movements of butter into the Chicago markets. During the summer months, the peak production period for South Dakota, the Chicago and

Table 8—Systematic Plan of Price Differentials Used by Land O' Lakes Creameries, Inc.¹

Butter score	Cents above Preceding Score	Cents above 88 or Lowest Score
88	0	0
89	3/4	3/4
90	3/4	1 1/2
91	1/2	2
92	1/2	2 1/2
93 (ripened)	1/2	3
93 (sweet cream)	1/2	3 1/2

¹ North Dakota Agricultural Experiment Station Bulletin No. 238, page 53, 1930.

Table 9—Creamery Butter Price Differentials on the Chicago and New York Markets*

Butter Score	Cents above the preceding score						Cents above 88, or lowest score					
	Chicago quotation			New York quotation			Chicago quotation			New York quotation		
	Year			Year			Year			Year		
	1933	1934	1935	1933	1934	1935	1933	1934	1935	1933	1934	1935
88	0	0	0	0	0	0	0	0	0	0	0	0
89	.0021	.0060	.0298	.0085	.0042	.0154	.0021	.0060	.0298	.0085	.0042	.0154
90	.0069	.0056	.0050	.0035	.0059	.0332	.0090	.0116	.0348	.0120	.0101	.0486
91	.0052	.0050	.0034	.0050	.0043	.0038	.0142	.0255	.0382	.0170	.0268	.0524
92	.0060	.0047	.0045	.0047	.0035	.0032	.0202	.0310	.0427	.0217	.0314	.0556
93	.0073	.0072	.0062	.0086	.0076	.0075	.0275	.0285	.0489	.0303	.0255	.0631

* Source: Year Books of Agriculture, United States Department of Agriculture.

Price differentials calculated from average wholesale prices per pound, by scores, by months. Yearly average prices determined by computing arithmetic averages of monthly prices. Wholesale prices are principally sales by first-hand receivers to jobbers, Chain stores or other large distributors in less than carload lots.

Boston markets pay a larger price differential for butter of various grades than do the buyers on the New York market. In the winter months their relationship is more in favor of buyers on the New York market.

The column on "cents above the preceding score", Table 9, indicates that the price differential between 88 and 89 score butter has been increasing from 1933 to 1935. On the other hand, the price differential for the butter scoring 90 or higher have been decreasing from 1933 to 1935. Assuming that the prices offered for quality butter on the markets is an indication of the willingness of consumers to pay for quality butter, one may conclude that other factors besides quality preference, affect the price consumers are willing to pay for butter. It appears that consumers do not want poor quality butter (butter scoring below 89) and are willing to pay a premium for higher quality butter. The amount of premium they will pay depends upon a number of other factors, such as size of incomes, size of family, position of the business cycle and price of substitutes.¹

The analysis of this problem for such a short period is not sufficient to warrant definite conclusions. It does indicate that it is becoming increasingly more difficult for creameries to pay a sufficient premium to attract quality cream.

In the case of creameries producing a low score of butter, who desire to increase their quality of butter, the effect of the small spread in cents above the preceding scores of butter is less acute. If a creamery were producing 88 score butter, it could, by increasing

1. The Outlook for the Dairy Industry.
U. S. Dept. Agr., Misc. Pub. No. 124, August 1931

the quality of butter to 92 or 93 score, receive 4 to 4.8 cents for 92 and 93 score butter respectively. The price differentials offered for quality butter on the central markets creates a greater problem for those creameries producing 90 and 91 score butter.

Just how long the somewhat distressing price differential problems will exist is hard to say. In recent years butter prices have been greatly influenced by changes in consumers' incomes¹. The influence of income on consumption of butter was studied in selected areas in New York, Philadelphia, and New Jersey². It was found that as incomes rise per capita, consumption increases. In Washington studies were conducted on the effect of quality of butter on consumption of butter³. The price of the various scores of butter is an important factor in determining the quality of butter purchased. The quality of butter purchased is influenced to a certain extent by the incomes of purchasers. It is possible that in periods of low income of purchasers, the price differentials will be relatively smaller than in periods of higher incomes.

The demand for quality of butter is very strong. Quality improvement programs are being pushed by almost every creamery. The methods of payment and amount of premiums paid for quality butterfat varies widely among creameries. It is evident that creameries must produce quality butter in order to meet the demand of today's consumers. The methods of encouraging the production of quality butter may be through payment of premiums for a quality product, or the placing of penalties

1. Ibid, page 56

2. Ibid, page 56

3. Ibid, page 56

on the production of an inferior product. Which method will become universally used will be largely determined by the quality differentials that consumers are willing to pay as reflected through the price of butter on the central markets.

Basis of Price Paid for Butterfat

In the early days, creameries usually based their buying price of butterfat on extra or standard quotations at New York, Chicago, Elgin and Boston.

Reports from numerous creameries in the state indicate that the Chicago and New York quotations for "standard" or "extra" butter are preferred in determining the price paid for butterfat. Some of the creameries reported that they received premiums over "standard" or "extra" quotations and basing the price they paid for butterfat accordingly. Creameries producing a large volume of high quality butter preferred the New York quotations, while smaller creameries producing a lower quality of butter favored the Chicago quotations.

Cooperative creameries selling butter through a cooperative sales agency receiving the average monthly market price, usually use their price as the basis for determining the buying price of butterfat. Those who sold otherwise usually used either the Chicago or New York quotation and frequently paid premiums.

In areas where the competition for butterfat is very keen between creameries, the competitive price is generally paid.

Methods of Securing Butterfat

In the early days the creamery relied on the producers to deliver their own milk or cream to the creamery. This method was satisfactory for a local creamery. Creameries located in the more scattered prod-

duction areas were found to operate milk routes and later, when the farm separator came into use, operated cream routes. Every practical method of securing cream is now in use. Creameries now receive their butterfat from the producer at the door, direct shippers, cream stations, and cream routes. The increasing pressure for more volume has resulted in the use of two or three or all of the methods of securing cream. The local creameries are no longer limiting their method of cream procurement to producer at the door, but are now using the direct shipping method, the cream station, and are operating one or more long cream routes. Likewise, the centralizers have extended their methods and now many of them are operating many long cream routes.

The various methods used in procuring cream by types of creameries are shown in table 10. Thirty-eight creameries replied to the question asking for the methods of securing cream, while 35 reported the volume received by each method. (See Table 11) These reports are well distributed over the state and give a fair picture of the procurement situation. "At the door" cream routes and cream stations are the methods most favored by creameries reporting. Cooperative creameries rely on the producer delivering at the door and cream routes for the greater portion of their volume. Recently, some of them are using the cream station and some the direct shipping methods in order to maintain or increase their volume.

Private and corporation creameries, especially the smaller ones, rely solely on the producer "at the door" method. The larger creameries of this type are making more use of the other methods, especially the cream routes and cream stations.

Table 10—Volume of Butterfat Received by Various Methods of Procuring Cream as Reported
by 35 Creameries in South Dakota in 1934¹
(Classified by type of creamery)

Creamery Type	No. companies Reporting	Total Volume of Butterfat Received	Per cent of Total Volume Received by following:				
			Door Cream Routes	Cream Stations	Direct Shippers	Other	
All creameries	35	8,731,675	36.8	28.0	31.2	2.9	1.1
Cooperative	19	4,738,663	43.2	44.9	10.0	1.9	0.
Private & Corporat'n.	13	1,926,845	52.9	16.3	27.0	3.8	0.
Centralizers	3	2,066,167	7.3	0.	83.7	4.6	4.4

¹ Source: Schedules received from creameries in 1935. Data for calendar year 1934.

Table 11--Methods of Securing Butterfat by 38 Creameries in South Dakota in 1934¹
(Classified by types of organization)

Creamery type	Number Creameries Reporting	Door	Routes, Door	Routes, Cream Station, Door	Cream Station, Door	Direct Shipper, Door	Routes	Door, Routes, Cream station, Direct shippers	Direct shipper, Cream station, Door, other
Total creameries	38	12	12	2	4	3	1	1	3
Cooperative	21	6	11	0	1	1	1	1	0
Private & Corp'n.	13	6	1	2	2	2	0	0	0
Centralizer	4	0	0	0	1	0	0	0	3

¹ Source: Schedules from Creameries in 1935. Data for calendar year 1934.

Centralizer creameries favor the cream station and direct delivery and "at the door" methods. To meet competition and secure additional volume, some of them are operating extensive cream routes. The larger ~~local~~ centralizers find it to their advantage to use all four methods.

What relation does the volume of butter produced per creamery have on the methods of securing butterfat? Thirty-five creameries were studied from this point of view. See table 12. It was found that the smaller creameries received the greater portion of butterfat from producers delivering at the door. None of the creameries producing under 100,000 pounds of butter secured cream by cream routes and cream stations. Some received cream from direct shippers. As the size of creameries increased, it was necessary to use additional methods of cream procurement to supply additional volume. The first move was to operate cream routes and later, as more volume was needed, creameries adopted the use of the cream station. In the larger creameries, those manufacturing 300,000 to 500,000 pounds of butter yearly, "at the door" cream routes and cream stations are the most used and desired methods of cream procurement. Creameries producing over 600,000 pounds of butter procure the greater portion of their butterfat from cream stations and cream routes, and relied to a smaller degree on "door" deliveries. Private communication with many of the largest creameries indicate that a larger volume of butterfat was secured from direct shippers than was indicated by creameries returning questionnaires.

Effect of Competition on Extension of Trade
Area and Methods of Cream Procurement

The establishment of creameries has accentuated the problem of a

Table 12--Volume of Butterfat Received by Various Methods of Processing Cream as Reported
by 35 Creameries in South Dakota in 1934¹
(Classified by volume of butter manufactured)

Size groups Pounds of butter manufactured	Number of Creameries Reporting	Total volume of butterfat received	Per cent of total volume received following methods:				
			Door	Cream Route	Cream station	Direct shipper	Other
All creameries	35	8,731,675	36.8	28.0	31.2	2.9	1.1
Under 100,000	6	240,926	92.9	0.	0.	7.1	0.
100,000 - 200,000	9	1,044,153	77.3	17.3	0.	5.4	0.
200,000 - 300,000	8	1,637,954	35.8	38.7	20.1	5.4	0.
300,000 - 400,000	3	914,159	53.3	31.5	15.2	0.	0.
400,000 - 500,000	2	720,508	47.1	33.8	19.1	0.	0.
600,000 - over	7	4,173,975	18.5	26.3	50.7	2.3	2.2

¹ Source, Schedules from creameries in 1935. Data for calendar year 1934.

dependable supply of butterfat. In the past, most of the creameries outside of the centralizers were content with the local area within easy driving distance from the creamery. The severity of competition between creameries resulted from two causes. The recognition by aggressive creameries, of the importance of a large volume in maintaining maximum efficiency, resulted in proceedings to extend their trading area. The density of butterfat production usually was not sufficient in their local trading area to maintain maximum volume. Improved roads and transportation facilities made feasible the use of many and long cream routes. Naturally creameries adapted this system and rapidly expanded their trading area. During prosperous years, many creameries were established in or near areas already served by another creamery. This is especially true of the cooperative creameries. In recent years as a result of these movements and other factors, some creameries have failed, and others, desperately in need of volume, used every available method to increase their volume, which meant an extension of their trade area and use of additional methods of cream procurement.

Evidence that cooperative and all other creameries are competing, very largely at the expense of the latter, is to be found in the fact that five independent, one corporation, and two centralizers, went out of business in 1935-'36, while none started. In practice many of the larger and more aggressive cooperative creameries are taking on certain centralizer aspects. Many of them are now operating cream stations, and many of them are operating from one to several long cream routes.

The factors limiting the territory from which cream may be ob-

tained by a creamery are mainly the following; the condition of roads in the community, the costs of transportation, and the extent of injury to the quality of cream while in transit¹.

The extent of road improvement has an important bearing on the transportation of cream. Good roads enable a creamery to serve a large territory at low transportation costs. When farmers are delivering their own cream, good roads encourage frequent and regular deliveries, which are important factors in making quality butter.

Distance and density of butterfat production appear to be the limiting factors in cream procurement when cream routes are used, primarily because trucking costs increase with the increase in distance. If the trucks must travel a long distance to obtain a full load, trucking costs will be high. Trucking areas are usually limited to hauls of twenty to sixty miles.

As a result of this great expansion era, keen competition has developed among most creameries. In many cases two and three creameries are securing butterfat from portions of the same area. Severe competition of this kind is costly to the creameries involved. In the case of cooperative creameries competing against each other, such a policy works against the spirit of cooperation and may in time defeat the purpose of cooperatives.

The rapid expansion in the use of cream routes and the wide use of the cream stations have enabled the creameries to extend their trading areas. Table 13 and figure 19 indicate the relation of volume of butter produced per creamery to the trade area for thirty-three creameries in 1934. Figure 19 and table 13 do not indicate the actual trading area of creameries reporting. It merely indicates the approx-

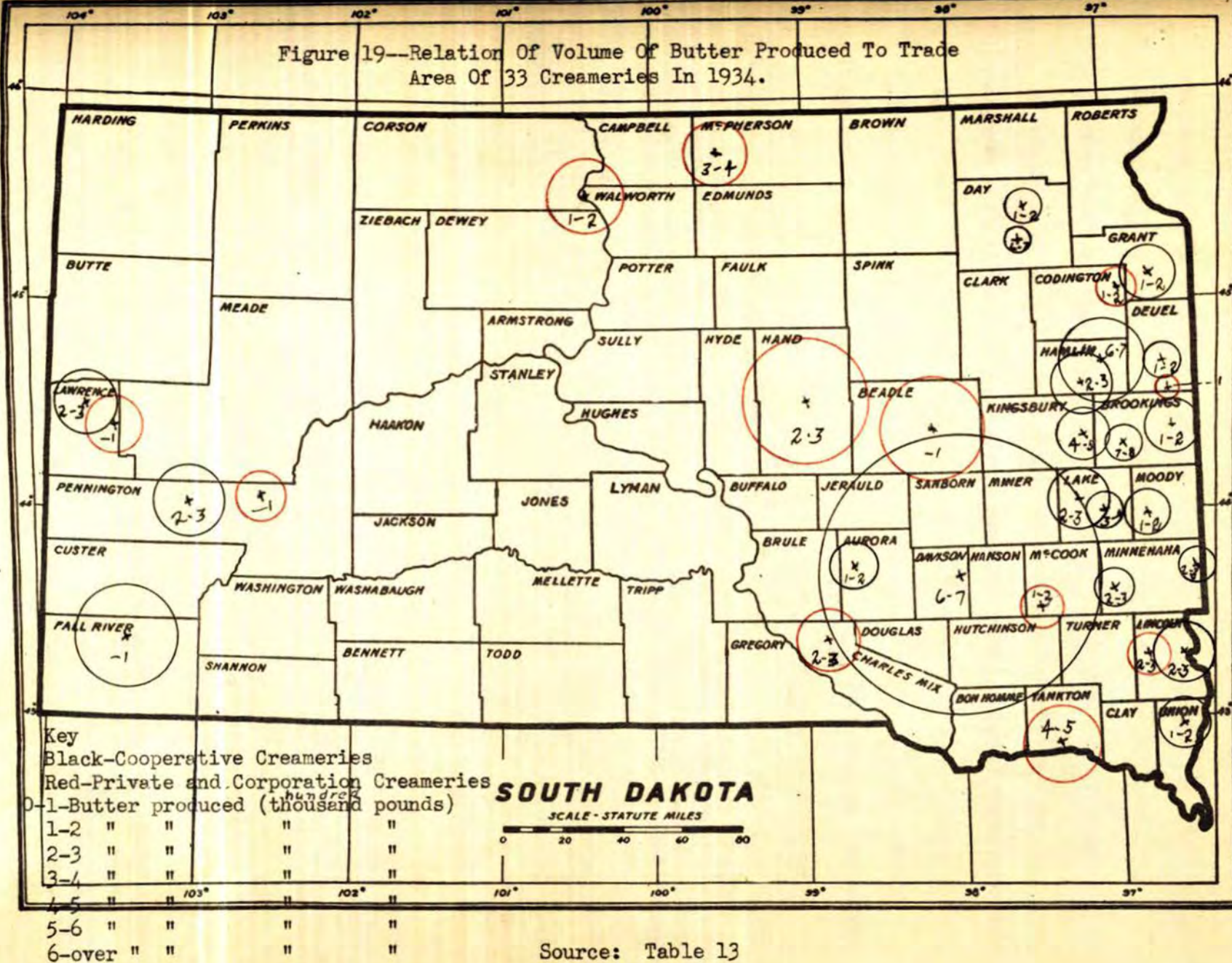
imate area. The creameries were asked to report the longest and shortest.
1. White, William, Essentials for the Successful Operation of a Local Creamery, Pub. 37

Table 13--Relation of Volume of Butter Produced to Trade areas of 33 Creameries in South Dakota in 1934.¹ (Classified by type of creamery and volume of butter manufactured.)

Size groups Pounds of butter Manufactured	Number of Creameries Reporting	Butter made Pounds	Average per creamery Pounds	Range of largest distance Miles	Range of shortest distance Miles
All creameries	33	8,439,190	255,733	15 - 175	3 - 20
Cooperative	21	6,267,007	298,429	15 - 175	5 - 20
Under 100,000	1	37,598	37,598	40	16
100,000 - 200,000	7	1,009,907	144,272	12 - 24	6 - 9
200,000 - 300,000	6	1,391,133	231,855	12 - 55	5 - 10
300,000 - 400,000	2	717,607	358,803	20	6 - 10
600,000 - over	5	3,110,762	622,152	15 - 175	4 - 50
Private & corporate creameries	12	2,172,183	181,015	6 - 100	3 - 20
Under 100,000	4	188,170	47,043	6 - 50	3 - 16
100,000 - 200,000	3	426,842	142,281	15 - 100	5 - 16
200,000 - 300,000	3	741,491	247,164	22 - 90	6 - 20
300,000 - 400,000	2	815,680	407,840	30 - 50	10 - 14
600,000 - over	0	0	0	0	0

¹ Source: Schedules from creameries in 1935. Data for Calendar year 1934.

Figure 19--Relation Of Volume Of Butter Produced To Trade Area Of 33 Creameries In 1934.



Source: Table 13

est distance from which they secured cream. No distinction was made between methods of securing cream. It is assumed, therefore, that a creamery may be using one or all four methods of cream procurement.

The range of the longest distance from which cream was secured varied from 15 to 175 miles, while the shortest distance varied from 3 to 20 miles. Cooperative creameries tended to go farther out after cream than did the private or individual-owned creameries. There does not appear to be any great relationship between the volume of butter produced per creamery and the trading area. Many of the larger creameries are securing their butterfat from a smaller area than some of the smaller creameries are.

The size of the trading area of a creamery depends upon the density of butterfat production in the area and the number of creameries operating nearby.

By comparing figure 11, showing the location and number of creameries in operation in 1935-'36 and figure 19, showing the location of 33 creameries reporting their trading area, one can readily see the degree of competition that exists today.

In areas where many of the creameries are operating cream stations, the intensity of competition for cream is still more intense. Competition frequently causes more stations to be located in towns or communities than would seem necessary, because of small volume and the resulting higher costs of assembling butterfat. In almost every town or trading post there are one or more cream stations. The 902 cream stations in operation in South Dakota in 1936 were located in 427 towns. (Table 14). In two towns there were more than ten cream

Table 14.—Number of Towns in South Dakota having Different Numbers of Cream Stations¹

Number of Stations per Town	Number of Towns
1	193
2	114
3	62
4	28
5	14
6	9
7	4
8	0
9	1
10 and above	2

¹ Source: Creamery Reports from South Dakota Department of Agriculture.
Data as of May 19, 1936.

stations. One hundred ninty-three towns had one station and 140 towns had two. In towns in which there is located a creamery, three or four other creameries may be operating one or two stations each, in the same town. To meet the competition of cream stations, some creameries operate a cream station in the same town in which they operate a creamery.

Marketing of Butter By Creameries

Intorduction

The various buyers of creamery butter may be classified as consumers, retailers, and what is termed today, the private dealer, including the wholesaler, broker, jobber, and commission merchants¹. For the most part, and until recently, creameries paid little attention to the marketing of their butter, leaving that vital part of the business to dealers in butter at the various markets. Each creamery acted for itself, shipping only its own products, without any effort to cooperate with neighboring factories, even in an attempt at freight savings that might have been effected by shipments in car-load lots.

Recently, more emphasis is placed on the marketing phase of the creamery industry. Large cooperative sales agencies have been formed for the purpose of marketing butter produced by member cooperative creameries. Other large sales agencies have developed and expanded, offering marketing services to county creameries, although many county creameries prefer to market thier butter themselves, others prefer to market their butter through sales agencies, cooperative or otherwise. Those creameries desiring to market their butter them-

1. Clark, Fred E.
Principles of Marketing
The MacMillan Company, New York, 1932

selves often consolidate shipments with other creameries, thereby securing a freight saving; and by virtue of a large volume of butter, they are enabled to make better market connections and generally have more bargaining power.

Marketing of Butter as Reported by Creameries Returning Schedules

The patron comprises the principal outlet for sale of butter direct from the creameries to the consumers. Reports from 35 creameries operating in South Dakota in 1934, indicate that less than 4 to over 20 per cent of the butter produced was sold to creamery patrons. Local sales, that is sales to patrons, local consumers, and local retailers, accounted for 22 per cent of the total butter sold by 35 creameries reporting sales for 1934. (Table 15)

The 35 creameries reporting scales in 1934 were classified by type of organization. All types of creameries, considered as a group, shipped the greater portion of their butter to one or two markets.

Private and cooperative creameries, considered as a group, sell more of their output locally than cooperatives and centralizers, as indicated in table 14. In many cases the smaller creameries of each type sell their total output locally.

Twenty-five of the thirty-five creameries reported the markets to which they sold their butter. The primary markets were, in order of volume received, as follows: Boston, New York, Chicago, and Springfield, Mass. Other markets reported were Minneapolis, Minn., Sioux City, Iowa, Marshall, Minn., and Watertown, South Dakota. (See table 16). Trends of receipts of butter on the four principal markets will be discussed later in this paper.

Table 15—Volume of Butter Sold Locally and to Other Markets as Reported by 35 Creameries in South Dakota in 1934* (Classified by type of creamery)

Creamery Type	Number of Creameries Reporting Sales	Average Size of Creamery Reporting Sales	Total Butter Sold Pounds	Percent of Total Butter Sold	
				Locally	Shipped
All creameries	35	286,135	10,024,891	22	78
Cooperative	19	308,774	5,828,938	22	78
Private & Corporation	14	163,514	2,279,854	38	62
Centralizer	2	929,402	1,907,099	4	96

¹ Source: Schedules from creameries in 1935. Data for calendar year 1934.

Table 16--Volume of Butter Shipped to Various Markets as Reported by 25 Creameries in South Dakota in 1934* (Classified by type of creamery)

Creamery type	Number of Creameries Reporting Outer Shipments	Pounds of Butter Shipped	Per cent of Total Butter Shipped to the Following Markets ¹							
			Chi- cago, Ill.	Bos- ton, Mass.	New York, N.Y.	Spring- field, Mass.	Minne- apolis, Minn.	Sioux City, Iowa	Marshall, Va Minn., Iowa	Water- town, S. Dak.
All creameries	25	5,731,411	18.1	43.2	20.4	6.2	5.2	4.8	0.2	1.9
Cooperative	14	3,435,158	14.1	62.3	9.4	10.4	3.4	0.	0.4	0
Private & Corp.	10	1,451,451	38.0	22.9	0	0	12.6	19.1	0.	7.4
Centralizer	1	844,802	0	0	100	0	0	0	0	0

*Source: Schedules from Creameries in 1935. Data for calendar year 1934

The relation of butter sold locally and shipped to volume of butter produced is shown in Table 17. The amount of butter shipped or sold to other markets increases with the size of creameries. Small creameries rely largely on local sales of their product. The smaller creameries that do ship part of their butter usually sell to nearby markets, such as Minneapolis, Sioux City, Marshall, Pipestone, etc.

Trends in Butter Receipts From South Dakota at the Central Markets

The principal cities to which butter is shipped to wholesale distributors are Chicago, Boston, New York, and Philadelphia. These four markets received from South Dakota about 41 per cent of the estimated butter produced in South Dakota in 1936. Table ~~and~~ 19 and Figure ¹⁸ 20 show the trend in receipts of butter from South Dakota at these four markets from 1921 to 1936 inclusive, and the volume sold otherwise. The proportion of the estimated creamery butter produced in South Dakota that is sold at the 4 principal markets is declining. Some creameries find it to their advantage to sell to Armour, Swift, Beatrice Creamery, Chain stores, and cooperative sale agencies, rather than ship direct to the central markets. Others choose markets such as Minneapolis, Pipestone, and Sioux City that are within easy trucking distances from their creamery. A few of the creameries are marketing their butter at cities on the West Coast.

Chicago and Boston are the principle cities to which South Dakota's butter is shipped. In 1936 Chicago received about 70 per cent of the butter shipped to the four central markets and Boston about 22 per cent. New York received six per cent and Philadelphia two percent of the total butter marketed at the four markets. Figure 20 shows that Chicago and Boston have been, in the past sixteen

Table 17--Volume of Butter sold Locally and to Other Markets as Reported by 35 Creameries in South Dakota in 1934* (Classified by volume of butter manufactured)

Size Group Volume of Butter Manufactured	No. Creameries Reporting Sales	Average Size of Creamery Report- ing Sales Pounds	Total Butter Sold Pounds	Per cent of Total Butter Sold	
				Locally	Shipped
All creameries	35	286,135	10,024,891	22	78
Under 100,000	7	40,859	286,990	84	16
100,000 - 200,000	9	143,159	1,263,471	41	59
200,000 - 300,000	8	242,177	1,932,421	38	62
300,000 - 400,000	3	370,156	1,098,801	12	88
400,000 - 500,000	2	448,977	897,955	16	84
600,000 - over	6	749,075	4,545,253	10	90

*Source: Schedules from creameries in 1935. Data for calendar year 1934.

Table 19--Production and Sales of South Dakota Creamery Butter 1921 - 1936¹

Year	Estimated Production Pounds	Receipts at 4 principal markets ³ Pounds	Receipts in per cent of production	
			4 principal markets	Sold otherwise
1921	18,886,000	10,207,000	54.0	46.0
22	21,146,000	12,131,000	57.4	42.6
23	27,447,000	16,411,000	60.0	40.0
24	24,643,000	18,801,000	76.2	23.8
25	29,193,000	21,576,000	73.9	26.1
26	29,814,000	21,387,000	71.7	28.3
27	32,843,000	21,431,000	65.3	34.7
28	34,853,000	22,963,000	65.9	34.1
29	40,361,000	21,123,000	52.3	47.7
30	40,406,000	16,773,000	41.5	58.5
31	42,080,000	16,802,000	39.9	60.1
32	39,700,000	19,639,740	49.5	50.5
33	43,393,000	23,779,353	54.8	45.2
34	38,948,000	16,328,139	41.9	58.1
35	35,178,000	14,987,732	42.6	57.4
36	38,784,000 ²	15,861,898	40.9	59.1

¹ Source: Year Books of Agriculture, United States Department of Agriculture. Crops and Markets published by United States Department of Agriculture.

² Preliminary estimate

³ Principal markets are Chicago, Boston, New York, Philadelphia

Figure 18—Production And Sales Of South Dakota Creamery Butter, 1921-1936

Source: Table 19

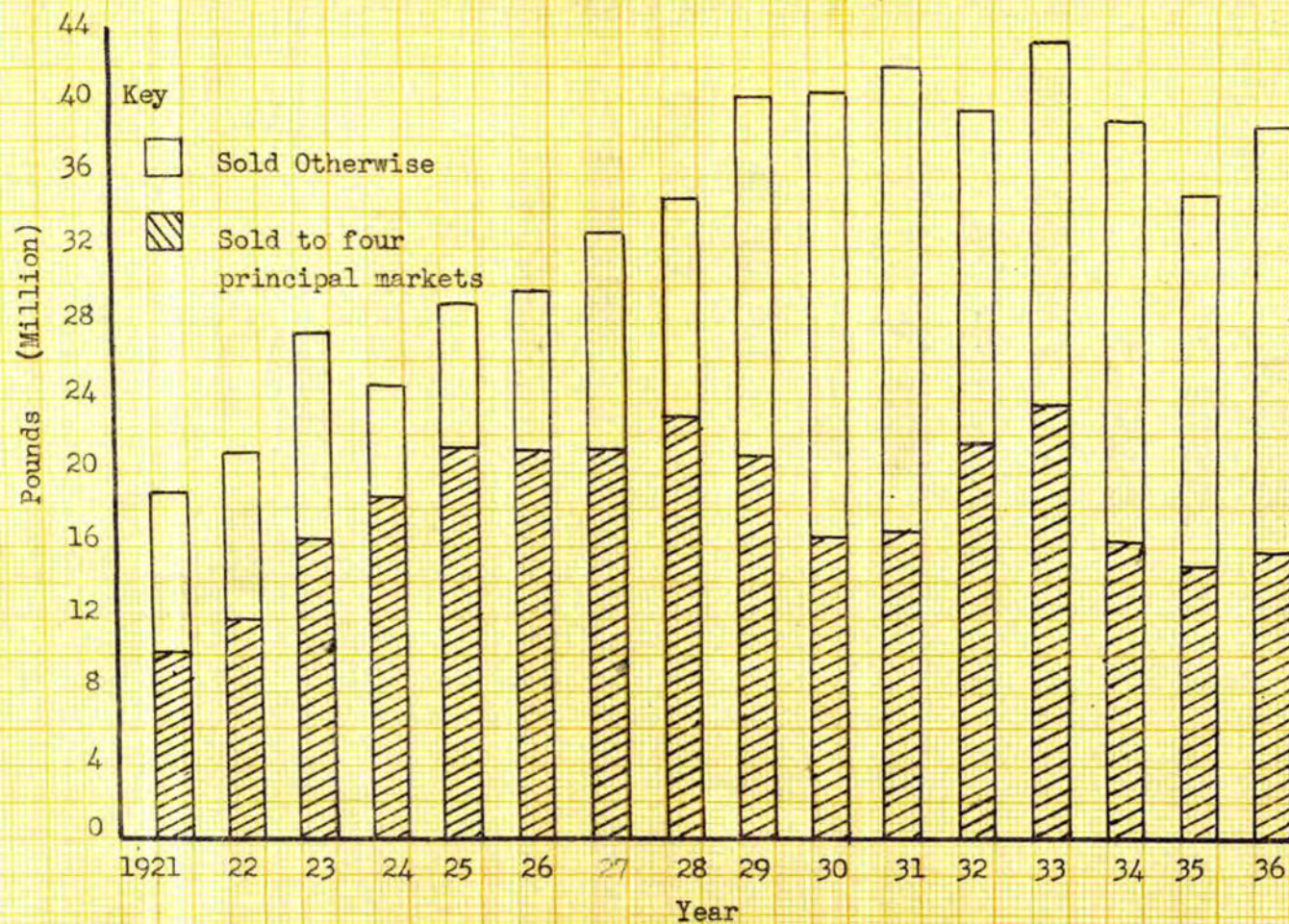
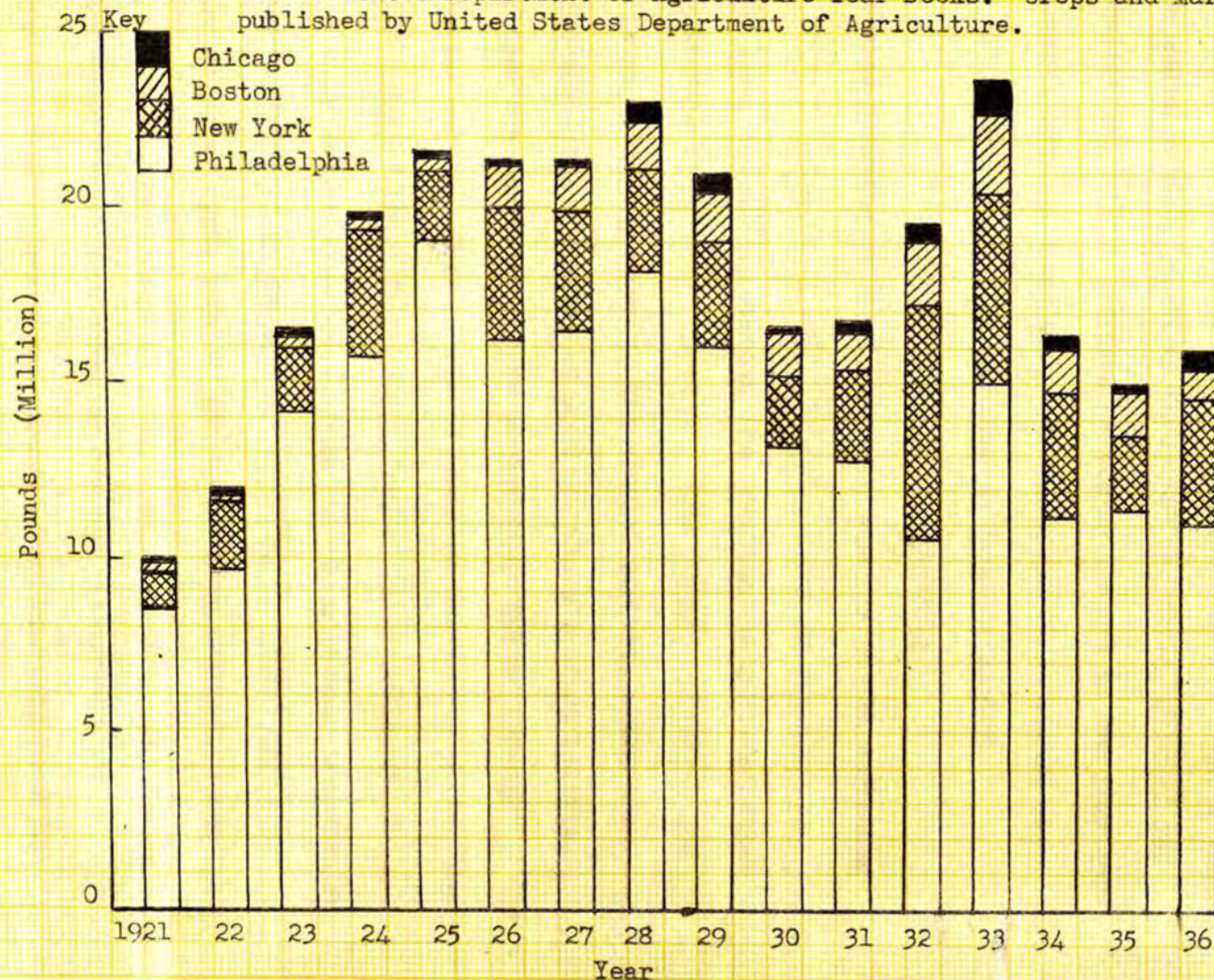


Figure 20--Receipts Of South Dakota Creamery Butter At The Leading Markets
In U. S. From 1921 to 1936.

Source: United States Department of Agriculture Year Books. Crops and Markets,
published by United States Department of Agriculture.



years, the largest receivers of South Dakota butter.

The importance of these four cities as markets for butter from South Dakota is shown in table 18. At all times during the year, receipts of butter are largest at Chicago, with Boston ranking second. During the summer months, April to September inclusive, Chicago and Boston received the greater portion of butter shipped to the four markets from South Dakota. Receipts at New York and Philadelphia are higher in the winter months from October to March inclusive.

Creamery Methods of Marketing

The general practice of South Dakota creameries in the marketing of butter is to dispose of as much of their butter as possible to patrons and local retailers, selling the remainder to various butter dealers in markets outside of the state. The larger creameries are more interested in making sales to the central markets, while the small creameries dispose of all, or most of, their product locally.

Centralizer creameries prefer to market their butter through their own sales agency. Many of the cooperative creameries prefer the same policy. Land O' Lakes Creameries, Inc. at Minneapolis and the Dairy and Poultry Cooperatives at Chicago are the principle cooperative sales agencies preferred by creameries reporting to recent questionnaires. On the other hand, many of the cooperative creameries are of the opinion that they can secure better service and a higher price by marketing their butter themselves or through wholesalers at various markets. Some cooperatives reported that they preferred to sell direct to a centralizer sales agency rather than assume the risks of marketing the butter themselves. Cooperatives creameries marketing

Table 18—Creamery Butter Receipts at Each of Four Principal Markets
in Per cent of Total Receipts¹
(Includes only receipts of creamery butter
from South Dakota)

Period	Receipts of Butter from S.Dak. at				Total Receipts of Butter from S.Dak. at four Markets Per cent
	Chicago %	Boston %	New York %	Phila. %	
1st quarter (5 yr.ave*)	56.3	27.6	10.8	5.3	100.
1936**	67.6	21.1	9.9	1.4	100.
2nd quarter (5 yr.ave*)	66.6	24.0	6.4	3.0	100.
1936**	69.7	24.1	3.2	3.0	100.
3rd quarter (5 yr.ave*)	72.9	19.2	6.9	1.0	100.
1936**	75.6	17.8	5.2	1.4	100.
4th quarter (5 yr.ave*)	62.8	24.2	9.7	3.3	100.
1936**	63.7	26.5	7.2	2.6	100.
Year total (5 yr.ave*)	66.6	22.9	7.8	2.7	100.
1936**	70.2	21.9	5.8	2.1	100.

¹ Source: Crops and Markets, published by United States Department of Agriculture; and United States Department of Agriculture Year Books.

* Five year average, 1932 - 1936, inclusive.

** Yearly average.

their butter themselves generally sell to large retailers, such as chain stores and other selected channels.

The methods of selling butter employed by privately owned creameries are as varied as the methods employed by cooperatives. Many prefer to market their butter themselves, others sell to centralizer sales agencies, a few sell to cooperative sales agencies, but the greatest portion sells to numerous dealers at the central markets.

In general, the creameries follow the practice of printing enough butter for the patron and local retail trade. The remainder is packed in tubs and shipped to the central markets in refrigerated cars. Creameries supplying a special trade print all their butter in one and two pound prints and truck them to market.

The general practice of South Dakota creameries shipping tub butter was to ship it to wholesale receivers upon an informal agreement between the creamery and the receiver was usually based upon the market quotation for standards or extras on day of arrival. Some creameries sold on a strictly graded basis.

The commission charges reported by various butter dealers handling South Dakota butter, ranged from one-half cent to one cent, depending on market conditions surrounding sales, and the time that each shipment was actually handled.

The Land O' Lakes Creameries, Inc. of Minneapolis and the Pipestone Produce Company of Pipestone, Minnesota are the two most important sales agencies serving South Dakota creameries. The former, a cooperative sales agency, serves a number of cooperative and private creameries throughout the state.

The Land O' Lakes Creameries^{1,2} Inc., is a service and marketing agency owned and controlled by cooperative creameries and cheese factories. It is an organization that standardizes, grades, brands, sells butter, purchases, supplies and maintains an extensive field service program for its member creameries.

Primarily, this organization handles butter for member creameries however, it handles some butter for non-members. A creamery may or may not sell its butter under a marketing agreement.

Butter sold through the Land O' Lakes is graded and pooled by grade. The price paid for butter is based upon the net receipts for each month. Creameries are paid the average price for the grade of butter delivered by them. Remittance is made monthly for the grade of butter sold less freight, dues, reserves and handling charges. Advances are made up to a certain per cent of the expected total, if the creameries so desire.

Only a few creameries in South Dakota are marketing their butter through Land O' Lakes creameries, Inc. Some are marketing under a marketing agreement and others are not. For the period 1930-1934 inclusive South Dakota creameries marketed an average of 1.3 million pounds of butter annually.

The Pipestone Produce Company is a subsidiary of the First National Stores of Boston. This company operates as a voluntary cooperative concentrating plant for the benefit of the shippers. The butter is assembled or picked up in their cars and is shipped to Somerville, Mass. on the consignment plan. Each shipment is inspected and remit-

-
1. Price, H. Bruce
Marketing Country Creamery Butter by a Cooperative Sales Agency
Minn. Agr. Expt. Sta., Bull. No. 244, 1928
 2. Land O' Lakes Creameries Inc.-Its organ., nature and History

tance is made on day of arrival, based on the New York Ex., according to quality. Payment for butter is not made at Pipestone. However, if desired, the company will advance from ten to eighteen dollars per tub, according to the market, but the actual sale and check to balance is sent from the head office.

In 1936, twenty creameries in South Dakota were shipping butter through this company. This plan enables many small creameries to ship in consolidated cars, thus cutting down freight cost. By shipping under the concentration plan, many creameries in the northeastern part of the state can likewise cut down freight cost.

Effect of Transportation on Marketing Methods

Closely related to output per creamery are the problems of transportation of dairy products from the farm to the creamery. Equally important are the problems of transportation of butter to market points. The problems of transportation today must deal with the railroads and trucks, as both agencies are highly important factors affecting the dairy industry.

It is scarcely conceivable that producers will change, significantly, the production of butterfat because of the freight rate or truck rate on it. A rate change tends to be reflected rather simply and directly in a changed income of the farm producer. Since it is relatively small in amount and not clearly visible to him, it may pass more or less unnoticed for a period of time. Where the two transportation agencies are in direct competition with each other changes in rates are more readily noticed by the producer. If other conditions in production and marketing are favorable, he will more than likely employ the agency that will transport his product the cheapest.

Such competition results in a highly varying rate system for both railroads and trucks.

The effect of such competition is indicated in table 20, showing freight rates on South Dakota butter from representative shipping points in South Dakota to important butter markets.¹ For purposes of illustrating the effect of competition between trucks and railroads, we are primarily concerned with the less-than-carload freight rates from points in South Dakota to Chicago and Minneapolis, as these two points are within trucking distance. Watertown, Sioux Falls, Rapid City, Aberdeen and Huron were selected as representative points of origin. The January 4, 1932 rates were prescribed by the Interstate Commerce Commission as reasonable maxima. The subsequent reduced rates were voluntarily established by the railroads to meet truck competition. Reduction in rates from January 4, 1932 to August 20, 1935, were made at all the representative points of origin except Rapid City, where the rate was increased. Deductions from the rate behavior at representative points of origin seem to indicate a similar behavior throughout the eastern part of the state. These rates may or may not be continued indefinitely.

It is anticipated that, when Federal Control of Interstate trucking operations becomes effective, the truck rates will be increased, and the railroads will then undoubtedly attempt to restore rates the same, or approximately the same as, the maximum reasonable rates prescribed January 4, 1932.

1. Schaeffer, A. J., Secretary; Carr, C. A., assistant Rate Expert Board of Railroad Commissioners of the State of South Dakota.
Private Communication.

Table 20—Freight Rates on South Dakota Butter from Representative Shipping Points in South Dakota to Important Butter Markets*

Origin	Destination	Jan. 4, 1932			Aug. 20, 1935		
		Per cwt.			Per cwt.		
		c. l.	l.c.l.	advantage c. l.	c. l.	l.c.l.	advantage c. l.
Watertown, S.D.	To Chicago	\$0.82	\$1.39	\$0.57	\$0.60	\$1.16	\$0.56
	Boston	1.51	2.13	.62	1.35	2.30	.95
	New York	1.48	2.10	.62	1.30	2.21	.91
	Philadelphia	1.47	2.08	.61	1.28	2.18	.90
	San Francisco	3.00	4.28	1.28	3.00	4.28	1.28
	Portland & Seattle	2.70	3.90	1.20	2.70	3.90	1.20
	Minneapolis	.65	.92	.27	.38	.89	.51
Sioux Falls	To Chicago	.72	1.22	.50	.50	1.03	.53
	Boston	1.42	2.01	.59	1.25	2.13	.88
	New York	1.39	1.97	.58	1.20	2.04	.84
	Philadelphia	1.36	1.93	.57	1.18	2.01	.83
	San Francisco	3.00	4.28	1.28	3.00	4.28	1.28
	Portland & Seattle	2.70	3.90	1.20	2.70	3.90	1.20
	Minneapolis	.60	.85	.25	.33	.81	.48

Table 20—Freight Rates on South Dakota Butter from Representative Shipping Points in South Dakota to Important Butter Markets*
(Continued)

Origin	Destination	Jan. 4, 1932			Aug. 20, 1935		
		Per cwt.			Per cwt.		
		c. l.	l.c.l.	advantage c. l.	c. l.	l.c.l.	advantage c.l.
Aberdeen & Huron	To Chicago	\$0.86	\$1.45	\$0.59	\$0.64	\$1.22	\$0.58
	Boston	1.55	2.20	.65	1.39	2.35	.96
	New York	1.52	2.15	.63	1.34	2.27	.93
	Philadelphia	1.49	2.12	.63	1.32	2.24	.92
	San Francisco	3.00	4.28	1.28	3.00	4.28	1.28
	Portland & Seattle	2.70	3.90	1.20	2.70	3.90	1.20
	Minneapolis	.74	1.05	.31	.43	1.04	.61
Rapid City	To Chicago	1.30	1.84	.54	1.30	1.96	.66
	Boston	1.84	2.61	.77	2.07	2.82	.75
	New York	1.81	2.56	.75	2.06	2.75	.69
	Philadelphia	1.78	2.52	.74	2.03	2.71	.68
	San Francisco	3.00	4.28	1.28	3.00	4.28	1.28
	Portland & Seattle	2.70	3.90	1.20	2.70	3.90	1.20
	Minneapolis	1.10	1.56	.46	1.10	1.61	.51

* Schaeffer, A. D., Secretary; Carr, C. A., Assistant Rate Expert of Board of South Dakota. Private Communication.

When creameries began to pay more attention to the marketing of their butter they naturally became aware of the savings in freight cost that could be obtained by shipping butter in carload lots.

As indicated by freight rates for 1935, shown in table 20, a substantial saving is possible when butter is shipped in car lots rather than in less than car lots. Many creameries are taking advantage of this saving by consolidating shipments with other creameries. Such procedure also enables creameries to make better market connections, therefore securing a higher price for their butter. In 1935 Chicago quotations on 90 score butter sold in centralizer car lots was higher the year around than 90 score butter sold in less than car lots. The same was true for the New York quotations, during the peak production period from July to September inclusive.

The improvement of transportation facilities, especially those of trucking, have naturally aided creameries to expand their trading areas. Fourteen creameries reported their trucking costs for 1934. The cost per pound of butterfat ranged from one and a quarter to two cents, depending upon the size of load, and distance trucked.

The improvement of transportation methods have been partly responsible for the strengthening position of some of the more larger, aggressive creameries in the state. In recent years, as a result of such improvement more and larger routes are commonly found in the eastern part of the state. More creameries are consolidating shipments of butter. Various sales agencies, have secured for creameries shipping through their organizations rate concessions on less than car lot rates to some feasible concentrating point. From these points butter is shipped in car lots to the various markets.

SUMMARY

1. In 1935 milk ranked next to wheat and cattle as a source of gross income to South Dakota farmers. In that year it accounted for about 15.7 per cent of the total gross income of South Dakota farmers.
2. There are few strictly dairy farms in the state, and these are generally located near towns and cities where the major outlet is market milk. In 1929, 2 per cent of the farms in South Dakota were classed as dairy farms.
3. The number of milk cows has increased from 135,000 in 1892 to 529,000 in 1937. In 1937 milk cows constituted about 33 per cent of all the cattle and calves. The greatest density of milk cows per 100 acres of farm land occurs in the eastern one-half of the state. In the southeastern counties there are from 3 to 5 milk cows per 100 acres of farm land. The average for the state was 126 pounds.
4. In 1934 South Dakota averaged about 1.4 milk cows per 100 acres of farm land.
5. In 1929 all cattle per farm averaged 23 head, 7 of which were milk cows, while in 1935 all cattle per farm averaged 18 head, 7 of which were milk cows.
6. It is estimated that about 50 per cent of the cows milked in 1929 were of the dairy type.
7. Estimated production of butterfat per cow has decreased from 138 pounds in 1924 to 110 pounds in 1934.
8. Estimated total milk production decreased from 1932 to 1934. In 1934 estimates reveal that 1,682,000 pounds of milk was produced on farms in South Dakota.

9. In 1934 approximately 73 per cent of the milk produced on South Dakota farms was sold. Milk sold as butterfat accounted for 66.4 per cent of the total milk sold.
10. For the year July 1, 1935 - June 30, 1936 there were 118 creameries in operation, classified as follows; independents, 59; local cooperatives, 39; local cooperatives, 22; stock centralizers, 16; and cooperative centralizers, 2. On September 30, 1936 the South Dakota dairy association reported 114 creameries in operation.
11. From July 1, 1935 to June 30, 1936 the 118 creameries purchased 51,831,873 pounds of butterfat. They manufactured 38,887,691 pounds of butter. Preliminary estimates for 1936 by the United States Department of Agriculture show that about 58,784,000 pounds of butter was produced in South Dakota. In 1936 creamery butter accounted for 81.9 per cent of all butter produced. Farm production accounted for 18.1 per cent of the total produced.
12. The first creamery in South Dakota was established at Springfield in 1883 by Mr. N. R. Hathway.
13. In 1935-'36, 34.7 per cent of the creameries were cooperative, manufacturing 56.7 per cent of the total creamery butter.
14. The average production per creameries in 1934-'35 was 273,089 pounds of butter. In 1935-'36 the average production per creamery was 329,557 pounds of butter. Local cooperatives averaged 299,090 pounds; independents, 123,867; local corporations, 196,588 pounds; and stock and cooperative owned centralizers, 1,003,746 pounds.
15. In 1929, there were 1,117 cream stations operating in South Dakota. They purchased 25,630,161 pounds of butterfat or about 48 per cent of the total butterfat sold by farmers in South Dakota.

16. On May 19, 1936 there were 902 cream stations operating in South Dakota. The ownership of these stations are as follows: corporation, 352; agent, 327; independent, 149; cooperative, 44; association, 23; and copartner 7. Stations owned by cooperatives were divided as to ownership as follows; cooperative centralizer, and local cooperation owned 34 and 10 were owned by farm producers. The association station reported their ownership as follows; 9 by farm producers, 12 by local and centralizer cooperations.
17. In 1935-'36, 86 per cent of the butterfat sold to creameries was purchased by creameries operating in South Dakota.
18. The principal methods of securing butterfat by creameries in South Dakota are; door deliveries, cream stations, cream routes and direct shippers.
19. The following methods used in paying for station cream are: straight commission per pound of butterfat, service charge plan, delivered price plan, and the delivered price guaranteed commission plan.

The general practice of South Dakota creameries buying cream at the door is to pay cash-on-delivery. Some cooperative creameries pay a dividend monthly, or every six months or yearly.

20. The problem of securing and paying for quality cream is of prime importance to creamerymen and farm producers. Consumers are demanding "quality butter". Their willingness to pay a premium for high quality butter is influenced by numerous factors.
21. Extreme competition for butterfat between creameries is in evidence, in many areas in South Dakota.

22. The principal central markets for South Dakota's butter are Chicago and Boston. In 1936 Chicago received about 70 per cent and Boston about 22 per cent of the total butter receipts from South Dakota at the four principal markets, Chicago, Boston, New York and Philadelphia.
23. Land O' Lakes creameries, Inc. of Minneapolis and Pipestone Produce Company of Pipestone, Minnesota are the two important sales agencies serving South Dakota Creameries.
24. Many creameries are taking advantage of the savings in freight rates by consolidating shipments in carload lots with other creameries.

APPENDIX

In the fall of 1935, schedule 1 on "Butter Marketing" was sent to all creameries operating in South Dakota. Figure 21 shows the location of the 126 creameries operating in the state in 1934-'35.

Returns were received from 49 creameries accounting for 51.7 per cent of all the creameries. Fifteen private and corporation creameries returned the questionnaires. This group accounted for 22.4 per cent of all the creameries. Returns were received from 21 cooperatives or 51.2 per cent of the total creameries in operation in South Dakota. Four out of 18 centralizer creameries returned the questionnaire. This group accounted for 22.2 per cent of all the creameries operating in South Dakota. Figure 22 shows the location of creameries returning the questionnaire.

Later in the year 70 letters (schedule 2) were sent to creamerymen operating in South Dakota and surrounding states. The purpose of these letters were to secure additional information on marketing policies and methods. Twenty creameries returned complete answers.

Figure 21—Location Of Creameries In 1934-35

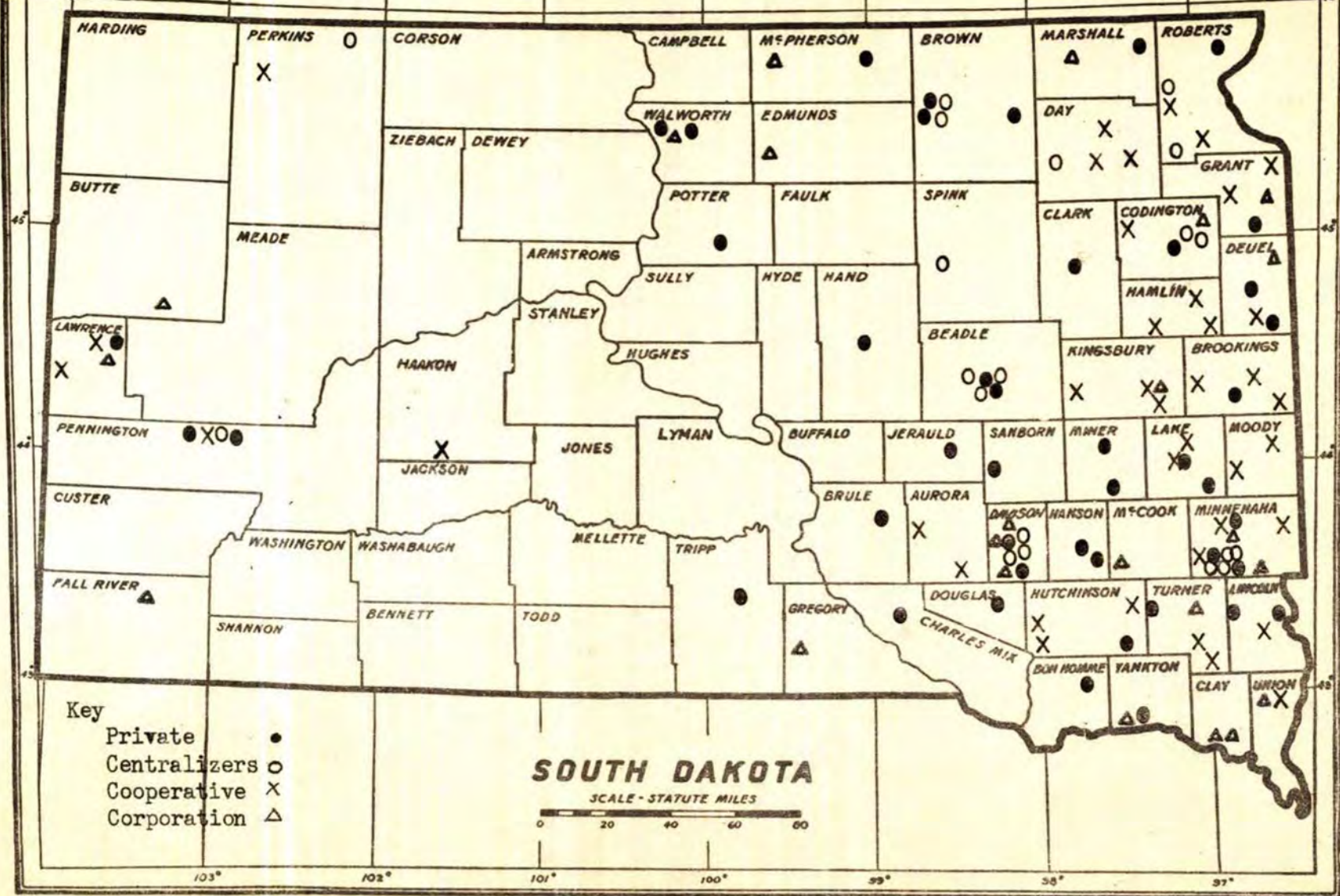
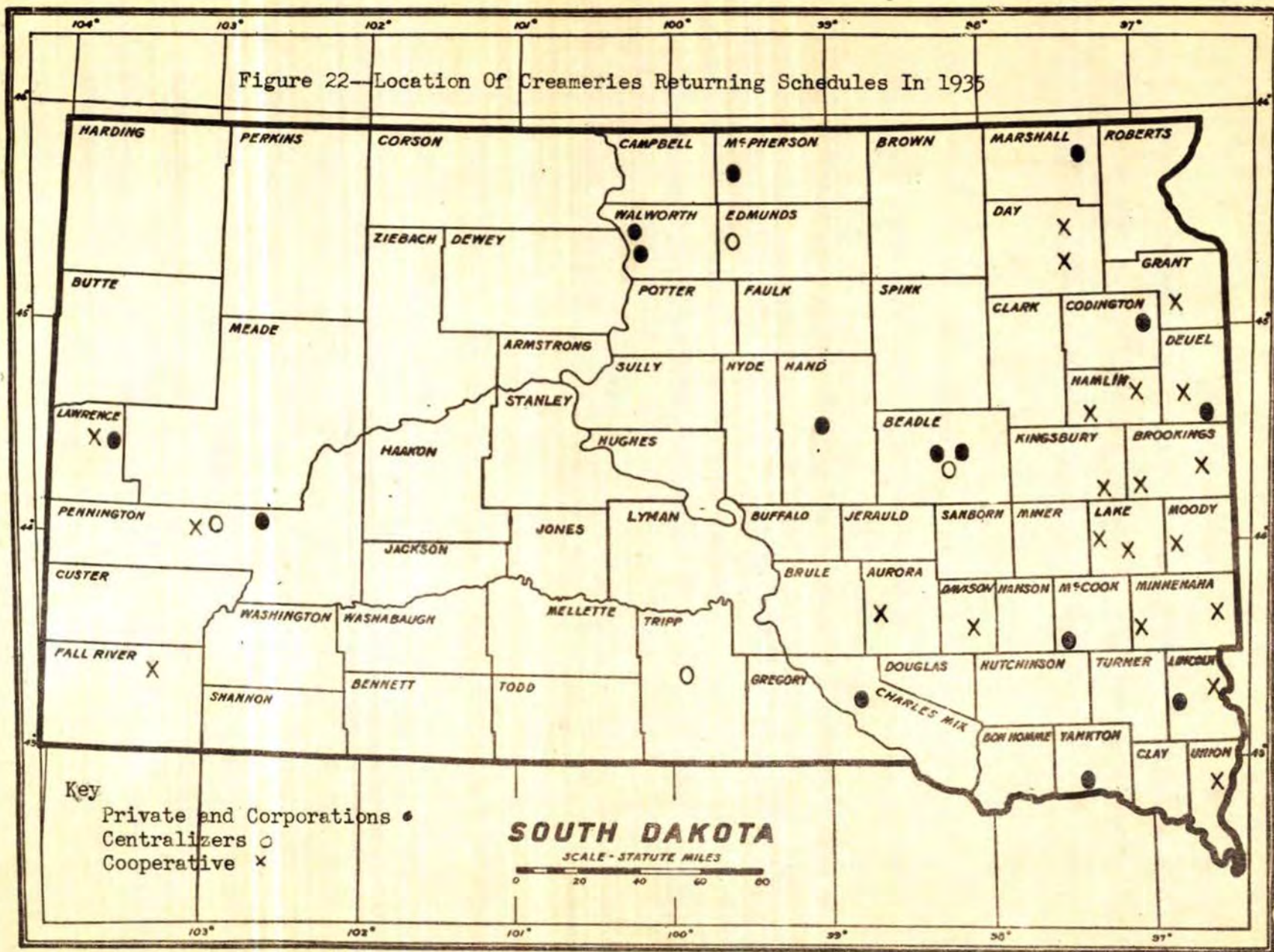


Figure 22—Location Of Creameries Returning Schedules In 1935



8. What kind of an organization do you consign your butter to?

Name

1. Commission firm _____
2. Private dealer _____
3. Broker _____
4. Jobber _____
5. Wholesale receiver _____

9. State pounds and value of butter sold locally from your creamery in 1930. Lbs. _____ Value _____ In 1934 Lbs. _____ Value _____

10. State your average manufacturing costs per pound of butter in 1930 _____; In 1934 _____

11. How many pounds of butterfat did you receive at your creamery by the following methods:

Method of securing butterfat	1930 Pounds	1934 Pounds
By cream routes		
By train		
From cream stations		
By producer delivering cream at your doors		
Other		

12. What is the most distant point from which you receive cream? _____

13. What is the average distance of patrons from creamery? _____

14. Which of the following methods for paying cream haulers did you practice in 1934?

Method of Payment	Amount per unit of payment.	
	Note: Such as amount per lb. of B.F. or per mile, etc.	Total costs for a year
Per trip		
Per lb. of cream		T
Per lb. of butterfat		
Per lb. of butter		
Per mile		
Per day		
Per month		
Other		

15. What volume of butter shipped to terminal markets was shipped as follows:

	1930	1934
	Cost per Cwt.	Cost per Cwt.
	Transpor-Brok-	Transpor-Brok-
	Lbs. Total tation erage lbs. Tot. tation erage	
Lbs. shipped in less than carlots		
lbs. shipped in carlots		
Lbs. trucked in		

16. List the volume of other products manufactured.

Products	1930	1934
	Lbs. or Gal.	Lbs. or Gal.
Market milk		
Market cream		
Ice Cream		
Cheese		

17. To what extent do you cooperate with other creameries in shipping your products?

18. Do you think that central grading and shipping points for Butter, located at strategic points (on the main railroad lines), would reduce transportation cost, increase bargaining power, and yield greater net returns for butter shipped from South Dakota?

19. In your opinion, where would you suggest that the central grading and shipping point be located for your creamery?

20. Do you think that a poultry and egg grading and shipping program could be carried on in connection with and located in the same centralizing point?

21. If possibly, will you enclose a copy of your financial statement or annual report for 1950 and 1954.

Any additional information which you think would be helpful will be greatly appreciated.

Comments:

SCHEDULE 2

Dear Creamery Manager:

I am making a study of the production and marketing of South Dakota Creamery butter, as a partial requirement for my Master's Degree in Agricultural Economics at South Dakota State College.

As you know "first hand" information is essential in presenting a progressive historical background for any study. This study happens to be the first of its kind made in South Dakota. I am coming to you for this information, to you who have been in the creamery business from the beginning to the present; to you who are best acquainted with the marketing of South Dakota butterfat and creamery butter.

Here are a few questions on which I would like to get your answer. Of course, I realize you may not be able to answer them all, but I sincerely trust that you will do your best.

First: Are you operating a creamery or creameries or cream stations in South Dakota? If so, when did you begin operations and are you still operating in South Dakota? How extensively are you operating in South Dakota?

Second: What methods of securing and paying for South Dakota butterfat have you used? Early methods? Present or best method under South Dakota conditions?

Third: To what market or markets do you sell your butter?

(a) Upon what basis are you paid for butter?

(b) Why do you choose such a market?

(c) By what means do you transport your butter to the market?

Fourth: Do you know who operated the first creamery in South Dakota, and where it is located?

BIBLIOGRAPHY

Books

Clark, Fred E., Principles of Marketing,
The Macmillan Company, New York, 1932.

Bulletins

Anderson, Harry G.; Benton, Alva H., Cooperative Marketing of Dairy Products, North Dakota Agricultural Experiment Station Bulletin, Number 238, 1930

Holt, B. A.; Combs, W. B., Judging Creamery Efficiency, Minnesota Agricultural Experiment Station, Bulletin Number 251, 1926.

Mighell, Albert, Changing Status of the Iowa Dairy Industry, Iowa Agricultural Experiment Station, Bulletin Number 338, 1935

Marklin, Theodore, Plans for Marketing Dairy Products Cooperatively, American Farm Bureau Federation, Chicago, 1924.

Olson, T. M.; Totman, C. C., Essentials in the Success of a Local Cooperative Creamery, South Dakota Agricultural Experiment Station, Bulletin Number 266, 1931.

Price, H. Bruce, Marketing Country Creamery Butter by a Cooperative Sales Agency, Minnesota Agricultural Experiment Station, Bulletin Number 244.

Palts, Roy C., Marketing Practices of Wisconsin and Minnesota Creameries, United States Department of Agriculture Bulletin, Number 690, 1918.

Rogers, R. H.; Elliott, F. L., Types of Farming in South Dakota, South Dakota Agricultural Experiment Station, Bulletin No. 238, 1930.

White, William, Essentials for the Successful Operation of a Local Creamery, United States Department of Agriculture, Miscellaneous Publication, Number 37, 1930.

Youngstrom, C. O.; Theophilus, D. R.; Atkinson, T. W.; Tucker, T. N.,

Efficiency of Cream Stations in Cream Collection, Idaho Agricultural Experiment Station, Bulletin Number 193, 1932.

Statistical Publications

Annual Reports of the South Dakota Department of Agriculture,
Pierre, South Dakota

Assembling of Butterfat Through Cream Stations, Fifteenth Census of
the United States Census of Distribution, Number A-201, 1932

Crops and Markets, United States Department of Agriculture.

Statistics of Farm Cooperative Business Organizations, 1920-1935,
Farm Credit Administration, Cooperative Division, Washington,
D. C., May, 1936, page 36.

Shepard, John B.; Smith, Richard K., Statistical Supplement to Milk
Production Trends, Number 9, Washington, D. C., March, 1934.

United States Department of Agriculture, Bureau of Animal Industry,
Bulletin Number 16, 1895.

United States Census of Agriculture, 1930 and 1935.

Year Books of Agriculture, United States Department of Agriculture

Miscellaneous

Vogel, I. E., Manager of the Borden Company, Produce, Sioux City, Iowa.
Private Communication.

"Half a Century", Fairmont Creamery

The Outlook for the Dairy Industry, United States Department of Agriculture,
Miscellaneous publication, Number 124, August, 1931.

Land O' Lakes Creameries, Inc., Its Organization, Nature and History,
Land O' Lakes Creameries, Inc., Minneapolis, Minnesota.

Schaeffer, A. J., Secretary; Carr, C. A., Assistant Rate Expert,
Board of Railroad Commissioners of the State of South Dakota.
Private Communication.

Smail, E. W., Sixth Annual Report of the Food and Dairy Commissioners,
State of South Dakota, 1906.